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THE TIME OF DECISION

President's Address

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Chicago

American medicine under free practice and without compulsion has accomplished results for which it need never apologize. These achievements are indissolubly related to a successful process of education and evolution in a democracy. The continuation of this process must not be halted by a revolutionary change promoted on the basis of such false premises and misstatements as appear in Senate bill 1679, the newest proposal of the present administration. On the basic principle of freedom for American medicine and freedom for America we cannot compromise. Our thirty years' war in behalf of this freedom for American medicine has reached the time of decision.

Our own country has thus far best withstood the strains of total war and the shocks of experiments in planned economy. We have been able to mitigate the sufferings of other nations and to assist them in their attempts to stabilize their governments. True, we have social problems and financial difficulties which need adjustment; they result from changes attendant on our economic evolution, and are in process of cure by this same evolution. As yet we are not insolvent; we have a right to resent the imposition on a virile nation of technics devised for those that are decadent.

As a remedy for deficiencies, shall we stifle the initiative and sense of personal responsibility of our citizens by the importation of a socialism that has failed in Europe? Politically controlled medical care supported by a compulsory tax is an early but essential part of the development of a socialized nation, the forerunner of various forms of collectivism. This fight is not that of medicine alone; it is the fight of all America.

ACHIEVEMENTS OF AMERICAN MEDICINE

Discovery, invention and research have made possible the prevention and cure of disease to an extent previously never imagined. One by one diseases such as pneumonia, meningitis, tuberculosis, venereal diseases, diabetes, diphtheria and pernicious anemia, which formerly were responsible for hundreds of thousands of deaths and incalculable days of illness, are being controlled by new remedies or prevented by appropriate medical and sanitary measures. Extension of local and county health units is proceeding under the stimulation and supervision of state and local medical societies, the United States Public Health Service and the American Public Health Association. All these measures are based on the store of medical and scientific knowledge built up, bit by bit, by medical research. Deaths from lobar pneumonia in metropolitan hospitals, formerly 20 to 45 for every 100 persons who were infected, have been reduced to 7 or less. Last year forty cities in the United States did not have a single death from diphtheria. The expectation of duration of life at birth in 1900 was 49 years; in 1949 it is 68 years. One thousand babies born in 1950 are destined to live a total of 69,000 years; had they been born in 1900 they would have had an expectancy of only 49,000 years; what will these 20,000 extra years be worth to them? Now it is announced for the first time that white women in the United States have at birth a life expectancy of 70.5 years. Medicine has decreased the fear of death, especially for the young; it has not and cannot produce immortality; it can only prolong the period of life. This prolongation of life is producing an aging population with new problems in the care of infirmities and in the further postponement of death from degenerative diseases. The final goal is not treatment but prevention, so that ultimately the costs of illness must decrease. Fundamental is health education so that informed people will avail themselves of what public health and medicine have to offer.

The American Medical Association is an organization of physicians whose chief concern is the care of the sick. Our progress depends on medical research and on the maintenance of a high quality of medical education. These objectives are emphasized in the charter and in the constitution of the Association. If anyone thinks that the medical profession is more concerned at this time with problems of social reorganization and problems of legislation than with problems of medical science, let him realize that these activities are necessary for improving and extending medical care and for preserving the characteristics that have made American medicine supreme in the world. "When the tumult and the shouting dies," our medical profession, relieved of this political burden, which is foreign to the purposes of medicine, will continue steadily to progress and go forward to new heights in the study and control of disease and in the advancement of public health.

MEDICAL INADEQUACIES

Among the expensive items in the costs of medical care, the chief concern is the hospital. More and more persons go to hospitals when ill, often because they have neither housing nor help which permit them to be sick at home. Moreover, many of the life-saving procedures developed by scientific medicine are immediately accessible only in hospitals. Years ago the patient with pneumonia was cared for at home, and, in the absence of modern effective remedies, too frequently he died. Now in the hospital he receives life-saving oxygen, antibiotics and transfusions and roentgenologic

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examination to determine the causes of sudden changes in his condition. And he lives instead of dying! These sometimes expensive procedures save lives but add to the cost of hospital care, although the total hospital days in any single illness are now usually less.

The ordinary expenditures of the hospital for labor, food and materials have grown large and constitute the chief hospital costs. In 1900 there were less than a thousand hospitals with approved standards; now there are over 6,000 registered hospitals with almost 1,500,000 beds, which in 1948 admitted close to 16,500,000 patients. But even this great increase in civilian hospital beds has not kept pace with the demand brought about by advancing methods of cure of disease, and by the rapid growth of voluntary hospital and medical care insurance. Hospital as well as housing construction was largely suspended during the war; since the termination of hostilities, costs of construction have risen precipitously, and funds previously considered adequate will build only a fraction of needed facilities. Extension of medical services is thus delayed by economic inflation.

Hospital boards are plagued by increased expenditures for necessary expansion, by decreased income from endowments and by decrease in new contributions, the former sources of which have been exhausted by taxation. Some hospitals are now prevented from utilizing their full quota of beds by limitation in nursing and service personnel. The demand for hospital beds can be relieved to some extent by provision in insurance policies for diagnostic procedures, such as roentgenologic examinations, without requiring hospitalization. Admittedly this presents difficulties in administration, but hospital costs can be lessened, and beds now occupied for diagnostic study made available for the more acutely sick.

Even for the patient at home, costs for nursing and medicines and necessary additional service accumulate a serious financial burden. Recent statistics indicate that costs for professional attention are relatively lower than other costs. These costs, which include increased wages to labor and increased prices of materials and food, are related to general inflation. They could be reduced in the present economic situation by reducing both the quality and quantity of hospital medical care, but this would not meet the needs or desires of the people. No doubt some saving could be accomplished, for both medicine and government, by continuous investigation as to possible economies and increased efficiency.

Some sparsely settled districts in the United States do not have medical care comparable to that available for most of the nation. Sociologic investigation is needed to determine the various cures for the deficiencies in such areas. Usually the area is economically poor, and could not support even modestly a qualified medical service. In few of these areas are there medical facilities such as laboratory and x-ray equipment necessary for an adequate service. The Hill-Burton bill, which was earnestly supported by the American Medical Association, is designed to supply diagnostic institutes, health centers and small hospitals, grouped geographically around larger hospital centers. Federal aid in the construction of these facilities is provided to the states where need is shown. Thus far governmental progress on this desirable project has been painfully slow. Establishment of these facilities will accelerate the redistribution of physicians to these areas. While this need is evident in many localities, its extent should not be determined by a count of towns or counties without a physician. Recent studies of purchasing habits of people in this country by the Bureau of Medical Economic Research of the American Medical Association show that neither political boundaries nor geography determine the districts in which people purchase the necessities of life or the physicians whom they consult or even the hospitals to which they go.

The lack of physicians in certain regions may be corrected by a variety of procedures, determined by local conditions. Better distribution should follow the establishment of local diagnostic facilities such as are being developed under the Hill-Burton bill. Many communities by their own initiative have provided better medical facilities, and thus have secured better medical service. The use of subsidy and the development of group practice need further trial. In sparsely supplied communities, technics for transport of patients to medical centers are an immediate requirement.

VOLUNTARY HOSPITAL AND MEDICAL INSURANCE

Ordinary illnesses may dent but do not destroy the family budget; nevertheless, voluntary health protection should be placed in reach of all workers—and this is the goal of American medicine. Occasionally serious or catastrophic illness burdens the man of limited means with a sum that he is unable easily to meet. He must have protection, and this can best be furnished by the rapidly growing voluntary insurance system.

The voluntary hospital and medical insurance plans that have been developed grew slowly at first; a number of early plans failed because they were not based on reliable actuarial experience. With sound actuarial experience acquired during the experimental years, these plans have grown until now over 55,000,000 persons are covered by hospital insurance either by Blue Cross or private companies, and the numbers insured are increasing rapidly.

Besides the formal voluntary plans, data concerning which are readily available for summary, a vast amount of voluntary aid is given by local unofficial agencies of all kinds, including religious, fraternal and local projects, which number at least 25,000. Studies of this large source of assistance are now in progress. Certainly these agencies represent values which must not be destroyed.

Under the proposal for compulsory sickness insurance, the people of the United States are asked to discard a form of medical practice which, in spite of its recognized imperfections, has given them the best quality of medical care of any country, and to accept a scheme of governmentally regimented medicine which has resulted in deterioration of medical care wherever it has been established.

MEDICAL EDUCATION

Fundamental to every aspect of medical progress is the quality of medical education. In the last forty years, medical education in the United States has attained a high standard and has embodied in its advance the rapid increase in scientific knowledge. By persistent effort weaker medical schools have been strengthened, until we now have seventy-one acceptable four year schools and five more in process of organization. In addition, seven other schools offer the first two years of the medical course. Close cooperation with hospitals has been established to the great advantage of patients, students and the hospitals themselves.

Worldwide increase in medical knowledge has correspondingly increased educational requirements of the

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medical student. The cost of medical education has been so multiplied that student fees meet but a small portion of the cost. Medical schools have suffered from lack of support due to oppressive taxation which syphons away private funds formerly available. Obviously medical schools must be aided financially either by private funds or government subsidy if they are to continue to supply enough physicians educated under a high standard to meet the needs of the nation. Regardless of the source of such aid the schools must be unhampered by political interference.

Recognizing that the time has now come to take stock again of medical education, and especially to inquire as to the source of the inordinately increased costs to universities of medical education, the Board of Trustees of the American Medical Association has authorized and supported a new survey to be made jointly by the Council on Medical Education and Hospitals and the Association of American Medical Colleges with the collaboration of the United States Public Health Service. In striving for ideals of which we approve, have we been wasteful of our resources? What has been the effect of federal grants for research on the universities and schools themselves? What will be the effects of such subsidies on national thinking? What will be required to increase the supply of physicians and at the same time maintain previous standards? If federal funds are used, what safeguards against political domination can be set up? The joint survey of medical education now under way should provide the answers to these questions and thus indicate the path for progress in the years to come.

ASSEMBLY LINES IN MEDICAL RESEARCH AND SERVICE

In every national plan in which government takes over the practice of medicine, uniformity interferes with personal incentive and initiative and diminishes the effectiveness of medical service. It substitutes a poor average for outstanding performance and limits progress. Uniformity, whether it concerns the administration of full medical care or of full employment, invokes the sovereign power of the state. Invoking these powers of government leads only to the destruction of personal liberty, the formation of blocs and the establishment of dictatorship. Proponents of government-controlled medicine disclaim any sweeping attack on democracy, but do admit that an extensive system of bureaucratic control will be necessary to make it work.

In many fields of community and national life uniformity of action may be economically necessary to make possible the utilization of science and discovery in raising standards of living. Mass production and the division of labor with the aid of machinery have enhanced the comforts of life and shortened the hours of labor. Assembly lines are at their best in dealing with inanimate objects; they fail miserably in dealing with sick human beings. They are excellent labor-saving devices profitably used to translate ideas which originated in laboratory research into finished products. Minor improvements are constantly being made in industrial assembly lines, but fundamental discovery has never come from this source alone.

Many fields of preventive medicine profit by the application of mass methods such as sanitation of water and food supplies, isolation and quarantine, mass immunization against contagious disease. These are procedures which the individual citizen does not perform for himself. The mass treatment of venereal disease protects the community by supplying care to patients with what were formerly called social diseases. This care they cannot or will not apply for themselves.

But often the assembly line works danger to scientific research. Important fields of scientific research may require the joint efforts of many men. Such properly organized projects yield results of highest importance, but in our admiration for the scientific achievement we are prone to attribute chief praise to organization and to forget the original idea on which the project was founded. The assembly line is just as dangerous to research as it is to the sick patient.

SPECIALIZATION

The evolution of medicine, largely dependent on invention and discovery in other sciences, has been the basis for the continuing development of new medical specialties. Specialism was discussed early in meetings of this association; resolutions concerning specialists were introduced in 1854, and in 1866 specialism was the subject of the presidential address.

Certain physicians favored by opportunity or education or from personal preference became more expert in some departments of medicine, and their special abilities were recognized by their colleagues. Such men were regarded as specialists. To this increasing group of specialists other less well qualified men attached themselves; the protection of the public and of scientific medicine from poorly qualified men was one of the chief reasons for the establishment of the specialty boards. Another and more constructive reason was the encouragement of younger men better to qualify themselves for some division of medical practice, while still retaining general medical responsibility for their patients. The five or more years of additional study have added immeasurably to the quality of service which these men are able to supply to the sick. Today 5,000 to 7,000 younger physicians are studying advanced medical subjects in preparation for certification in internal medicine alone, while continuing their professional care of patients. The standards of medical practice all over this country are thus being raised, and the public receives medical care from better prepared physicians. To destroy this incentive to better quality of service to the public by nationalized medicine would be disastrous to both physicians and their patients.

The specialty boards themselves can increase their contribution to medical standards and service by a continuing reevaluation of their requirements in preparation for certification to meet community needs.

Some unforeseen difficulties have arisen. Hospitals desiring to establish an improved status have insisted on board certification as prerequisite to staff appointment. This may result on occasion in the exclusion of well qualified men. In choosing appointees for civil and military positions, officials in charge have taken the easy way of using the specialty board yardstick as the sole measure instead of considering the individual qualifications of candidates.

In some instances specialists themselves have selfishly contributed to the limitation of staff appointments. The general practitioner must be admitted to participation in the work of the hospital if the hospital is to render its full service to the community and the public. Indeed, general practice must be fully integrated into our system of medical service.

The correction of this difficulty where it exists can be accomplished easily by reverting to methods used

by governing boards of hospitals before specialty certification developed. The simple standard of ability, quality of performance and necessary service to the community, taking into consideration all available information, should govern staff appointments.

THE FAMILY DOCTOR

The "passing of the family doctor" is a phrase so often repeated that people have come to believe it. He has not "passed." There are more well trained, honest and understanding physicians devoted to the interests of their patients now than ever before. Most internists are "family doctors." If you inquire of many of the older "specialists," you will find that, while their expert ability is available and used by their colleagues and the public, their real interest and the larger part of their time is spent in helping and advising their own patients and families. They are the trusted advisors and receive the confidences of successive generations of their patients. One of the tragedies of nationalized medicine is the inevitable interference with this patient-physician relationship, by the interposition of governmental clerks and officials.

Unfortunately some of the younger physicians recently certified by specialty boards have assumed that, by establishing their technical qualifications, they have become disqualified, or have relieved themselves of responsibility, for the family practice of medicine. In this self estimate, some few of them may be right, but the majority will come to appreciate that the ideal practice of medicine includes not alone first class technical training and expertness with hands, eyes and ears, but in addition a sympathetic and spiritual urge for service to their fellow men. Here they will find one of the great enduring and compensating satisfactions in the practice of medicine.

SOCIALIZED MEDICINE MEANS SOCIALIZED AMERICA

Compulsory sickness insurance is socialized medicine notwithstanding the disclaimers of its advocates. A frank admission of this truth undoubtedly would raise questions embarrassing to those who advocate the plan; with tongue in cheek they camouflage socialism by using technics commonly employed by propagandists with revolutionary political programs. The proposed plan for governmental medicine, they say, will not change anything except the method of payment for services. Why then should it require 163 pages, as in the proposed law, and a confused organization of hundreds of councils, boards, committees and similar agencies just to collect and distribute money?

Illustrative of the perversive thinking of this group of advisors is the remark of one who in criticism of the Brookings Report said, "What you should rather do is to decide what you want to prove and then get the evidence to support it."

Is it possible that the heads of our government realize the serious position they have been led to assume? Are they aware that the advice which they have followed came from those who for years have been craftily planning a radical change in our democracy? Mr. Justice Brandeis warned: "The greatest dangers to liberty lurk in insidious encroachment by men of zeal, well meaning but without understanding." And Samuel Gompers as president of the American Federation of Labor said in 1916, "Look over all the world where you will and see those governments where the features of compulsory benevolence have been established, and you will find the initiative taken from the hearts of the people."

The great attainments of American medicine must not blind us to the necessity of correcting established faults in medical care. We must, however, adopt remedies, whether social or economic, which will lead toward cure and not toward chaos, toward increased progress and not toward destruction of values already attained.

Socialism asserts that constant emphasis on the "increasing misery of the masses" must be maintained so that the sense of unhappiness and desire for change may be perpetuated. It matters not that the standard of living has been progressively rising and that all have more comforts and better medical care than did our forefathers. People must be persuaded that they are worse off than they are; then they will revolt even against that which is good.

Statesmen, industrialists, labor, agriculture and the medical professions are all concerned in the provision of good medical care for the American people, but only if individual freedom and initiative can be guaranteed. Nationalized medicine will be followed by nationalized industry. Industrialists see the threat to free enterprise and progress. Labor leaders are beginning to realize that "free medical care" is not what they thought it was and that with socialization of medicine comes later socialization of industry and ultimately government ownership of business and facilities, with loss by labor of the gains of one hundred years. The farmer, always an independent thinker, dislikes being told what and how much he can raise, and how much he will receive for it. None of these groups would now vote for a managed economy or a collectivist state, and yet this is the real objective of those who are urging nationalized medicine on our governmental representatives.

Medicine and economics are intimately connected. Poor living conditions and poor food contribute not only to social unrest but also to poor health. The whole economy of the nation is dependent on the health of its people. In choosing a method of medical care which will accomplish our objective, we must have in mind the effect of the system of medical economy on the quality of medical service. Nor can we ignore the cost of any new system. The catastrophic effects of illness cannot be avoided by creating catastrophic bankruptcy.

Characteristic of America is individual initiative which has made America great. Always some forget that the individual in a democracy has a responsibility to the state; they assert that the state should care for all. Frequently they forget that they themselves furnish the funds that support the state. The government is the people and government funds are derived from the people by taxation, regardless of any pseudonym applied to the technic of collection.

The American people are urged to accept a federal monopoly of welfare. Citizens will lose individual initiative and responsibility characteristic of a democracy providing assurance of freedom, and they will become involuntary medical wards of the state.

Thus far standards of living and freedom in America are not approached by any other country. Let us oppose any efforts to substitute for this freedom a dubious socialistic program such as that now advocated by the proponents of nationalized medicine. We must be constantly mindful, with David Hume, that liberty of any kind is seldom lost all at once.

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MYOCARDIAL INSUFFICIENCY

Mechanisms and Management with Data on a New and Safer Mercurial Diuretic

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The modern physician hopes to prevent the development of the symptoms and signs of myocardial insufficiency. The clinical evidences of potential or latent asymptomatic heart disease are certain reliable criteria.[1] The potentialities of the diagnosis should be recognized and a program for the postponement of heart failure inaugurated. It is desirable that one have a clear understanding and prompt interpretation of the derangements of the function which may insidiously put in an appearance in patients who had old healed heart lesions. Some knowledge of the mass of new human cardiologic data is indispensable. Many facts have been revealed in recent years by venous catheterization of the right atrium, ventricle and pulmonary artery, as devised by Forssmann.[2]

Critical consideration of the newer concepts is not only desirable but actually necessary for the scientific handling of patients. Some iconoclasts have taken the extreme view that congestive heart disease and circulatory failure result primarily from renal changes and disorders of salt and water metabolism. It must be admitted that edema, a most important manifestation of myocardial failure, is a product of deranged sodium excretion. The dissipation of edema, the objective of much of the treatment that is instituted in heart disease, is accomplished by increasing the output of sodium in the urine.

The fact remains that myocardial insufficiency begins in the heart muscle. The new data must be carefully appraised with this fact kept clearly in mind. The generally accepted conceptions of the functional origin of the symptoms and signs that accompany a weakening of the heart muscle support mainly the theory of back pressure failure. The evidence for a forward failure in some conditions is definite. The blood flow through the renal glomeruli as in other tissues is inadequate in either type and sodium is retained. The older ideas must be reviewed and reevaluated. Some revision is necessary as a result of recent discoveries. A broader and more comprehensive concept of the genesis of symptoms and signs of myocardial insufficiency has evolved.

CONCEPTS BASED ON INTERPRETATION OF VENOUS CATHETERIZATION DATA

The recent great advance in the study of the circulation has been the result of the further development of the technic of venous catheterization of the right atrium, right ventricle and pulmonary artery. Cournand and his associates,[3] Stead and Warren,[4] McMichael and Sharpey-Schafer,[5] Merrill,[6] Dexter and his co-workers [7] and others have used the new methods in extensive studies of the circulation in human subjects. The method made possible the more accurate determination of cardiac output under varying conditions by the direct application of the Fick principle: Cardiac output equals the total oxygen consumption per minute divided by auricular-ventricular oxygen difference times 100. Stead and Warren [4] found that the factors influencing cardiac output in heart disease are: (1) atrial pressure, (2) ventricular activity as controlled by the reflexes through the vagus, (3) peripheral resistance, (4) tissue requirements in the consummate vascular bed and (5) a factor of nervous imbalance brought about by sympathetic stimulation, by emotional stresses, or epinephrine or by autonomic suppression with atropine.

There has been reconfirmation of Starling's Law.[8] The heart's diastolic volume is determined by the filling rate and pressure. The work of the heart equals the product of the stroke output and the mean pressure. The mechanical work accomplished by the ventricle is correlated with diastolic fiber length. As Starling and Visscher [9] pointed out, the oxygen consumption increases with the length of fiber. As long as the oxygen supply keeps pace, the strength of the ventricular contraction and cardiac output will respond to increasing dilatation. Circulatory equilibrium is maintained, up to the critical diastolic volume and muscle stretch beyond which oxygenation lags and the ventricles fail to empty themselves. In myocardial dyskinesia basal relations of the cardiac output to the diastolic volume fail. The ability of the heart to do its job depends on the load of work it has to carry and the adequacy of the supply of oxygen and nutriments.

Inadequacy of the oxygen supply to the myocardium, especially the amount and availability of extra oxygen necessary for the accomplishment of added mechanical work, will cause myocardial efficiency to drop off, and a relative insufficiency in cardiac output develops. The ventricular cavities later dilate with an absolute decrease in cardiac output. Complex and partially effective compensatory mechanisms are called into play. McMichael and Sharpey-Schafer [5] found evidence of an active venoconstriction to account for some of the increase or rise in venous pressure. The classic picture of congestive or backward heart failure, according to Harrison [10] and Heyer with Harrison,[11] develops as the gradient of blood flow between the pulmonary and aortic systems drops off and as increased blood mass accumulates in the venous channels back of the heart. This backward or congestive failure often appears early in rheumatic carditis or coronary insufficiency, while there is still considerable myocardial reserve.

Circulatory or forward failure may develop in several conditions in which the arterial bed is widely dilated,

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as in aortic regurgitation, severe anemia, hyperthyroidism and beriberi. In these conditions, the cardiac output in failure has been shown to be normal or actually increased, but still inadequate. The minute volume circulation is not greatly decreased; yet the blood flow actually provided to the tissues in the widely dilated bed may still be below the critical minimum required for the body as a whole. Sitting or standing decreases the cardiac output, while recumbency increases it.[12]

Clinical manifestations which are considered evidence of myocardial insufficiency have their origin in the failure of heart muscle in ventricular contraction adequately to supply the tissues with blood. There is thus a gradual or sudden dropping off of the ability of the heart to continue to increase, absolutely or relatively, the ventricular output in response to the demands. Merrill [9] pointed out that at a certain critical level of cardiac output the blood flow falls below that necessary for the normal renal function of sodium excretion and for the adequate supply of enough oxygen to the tissues. There result sodium and water retention in the extracellular compartment, increased blood volume, venous congestion and reflex vasoconstriction. This is the picture of heart failure whether the inadequate renal blood flow is due to absolute or relatively inadequate cardiac output.

CONGESTIVE BACKWARD PRESSURE AND CIRCULATORY FORWARD PROPULSION FAILURE

The theory of backward pressure congestive failure is easily visualized.[10] The rate of development determines the extent and character of the clinical symptoms and signs. In the very suddenly developing acute insufficiency or left ventricular failure, extreme dyspnea and orthopnea develops and acute pulmonary edema promptly appears in the lungs. In the chronic insidious type, besides the lung congestion, the right ventricle also fails, with engorgement of the liver and ascites accumulating very late and producing dropsy in the dependent parts. Chronic backward failure, the traditional congestive failure, with low cardiac output and low pulse pressure, is found in myocarditis of coronary atherosclerotic origin, myocardial infarction, rheumatic myocarditis, diastolic hypertension, hypothyroidism, heart tamponade and pericardial constriction.

Forward, or circulatory, failure with normal or supernormal yet inadequate performance of the left ventricle has been demonstrated. Acute forward circulatory failure occurs in cardiac standstill, extreme bradycardia or tachycardia, shock and hemorrhage. Chronic circulatory forward failure of the type with high systolic cardiac output and high pulse pressure, yet insufficient minute volume of blood flow, occurs in rheumatic or syphilitic aortic regurgitations, systolic hypertension, hyperthyroidism, arteriovenous shunt, congenital lesions, anemia and beriberi.

DISORDERS OF SALT AND WATER METABOLISM

Many of the symptoms associated with heart failure have been shown in recent years to be more closely associated with disturbances of salt and water metabolism. Apparently the circulation in the kidney is most sensitive to changes in the general circulation, and renal blood flow is the first to be affected by relative or absolute decrease in cardiac output.[6] The kidneys promptly effect a shift in blood volume flow and secondarily in salt and water metabolism. The urinary output may be reduced to a fifth of normal, and yet there is specifically only sodium retention.

The secondary constriction of the efferent arteries may insure a normal glomerular filtration of sodium but not of sodium excretion, since tubular reabsorption of sodium has become supernormal. The kidneys and tissues seem to hold tenaciously to sodium in patients with congestive failure.

The reabsorption of sodium in the renal tubules may be greatly enhanced, incident to an excess of antidiuretic hormone, which the slow circulation in the pituitary may have called forth. The retention of the sodium has been held responsible for the increased blood volume and the venous pressure rise.

Warren and Stead,[13] in 1944, reestablished circulatory equilibrium by treatment of dehydrated patients in congestive failure with mercurial diuretics, and thus these patients, on the verge of heart failure (untreated), showed increase in body weight preceding the rise in the venous pressure. Warren and Stead [13] concluded that the edema developed because the kidneys did not excrete salt and water in the normal manner and that blood volume increase was the cause for venous pressure rise. Grant and Reischman,[14] in 1946, and Heyer and Harrison [11] had patients with chronic atrial fibrillation under perfect control with digitalis. They found that on withdrawal of the digitalis from these patients there followed promptly a rise in the venous pressure preceding any increase in weight, and they concluded that venous pressure rise preceded edema. Myocardial weakness may well create these disturbances in function.

The study of salt and water metabolism by Burch and Reaser,[15] using the isotope sodium 22, revealed a sharp ninetyfold retention of Na^{22} in cases of heart failure. They found that in a cardiac patient 50 per cent of Na^{22} was eliminated in about twelve weeks, while in the normal controls the same amount was eliminated in twelve days. They demonstrated that mercurial diuretics increased the Na^{22} output twenty-four fold and the chloride output concomitantly followed. The sodium and the water in the extracellular compartment and plasma definitely showed a concordant rise and fall. It had been reported by Calvin [16] that the plasma protein content of the blood mass actually increased in hemodilution and that blood serum proteins and albumin were added from the tissues in hydremia. Among patients with congestive heart failure and edema were found some in whom oligoalbuminemia was absolute as well as relative, probably as a result of hepatic damage, and in these the low albumin level of the serum contributed to the edema.[17]

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17. (a) Herrmann, G. R.: Blood Plasma Proteins in Edema, Ann. Int. Med. **24**: 893, 1946; (b) Diuresis, J. Lab. & Clin. Med. **26**: 211, 1940.

PHARMACODYNAMICS OF CARDIAC GLYCOSIDES IN CONGESTIVE HEART FAILURE

Digitalis shortens the cardiac systole and lengthens diastole within four hours after administration by mouth. There is thus produced increased myocardial efficiency and increased cardiac output, especially with slowing of the ventricular rate in atrial fibrillation. McMichael and Sharpey-Shafer [5a] suggested that venoconstriction be released by digitalis. Venous return and arterial pressure may be decreased in heart failure and subsequent venodilatation enhances the return flow. McMichael [5b] maintained that if the heart is being filled at pressure above the optimal, digitalis may further increase rather than diminish the cardiac output.

In patients with circulatory failure and increased output due to hyperthyroidism, aortic syphilis with free aortic regurgitation, arteriovenous fistula, anemia or beriberi, symptoms are usually not conspicuous until the conditions are far advanced. When decompensation does develop it persists even after the myocardial insufficiency is rigorously treated, as the cause cannot often be removed. In such cases, the need for minute volume flow, for the whole body or a large area, produces a reduction in venous filling which cannot be compensated for. A shock state may possibly develop, and the brain and the heart may be irrevocably damaged as a result of the demand and diversion of blood flow to other tissues.

In patients with congestive heart failure and decreased cardiac output as a result of myocarditis from acute rheumatic fever, coronary artery or hypertensive heart disease with tachycardia and disorders of mechanisms, the symptoms are promptly relieved by digitalization. In acute myocardial infarction, mitral stenosis and tachycardia, and especially in atrial fibrillation, congestive failure is usually precipitated early while apparently the myocardium has considerable reserve. The response to digitalis is usually prompt and the cardiac output rises to the point where the circulatory equilibrium is reestablished.

EMERGENCY AND CARDIAC THERAPY

In acute left ventricular failure and pulmonary edema, there is need for emergency treatment. Death may occur from anoxia, as in drowning. Oxygen under 4 to 6 cm. of water pressure should be administered until the cyanosis clears. Trapping venous blood in all four extremities with tourniquets or actual phlebotomy may halt the paroxysm. Morphine, sulfate, 11 mg. (⅙ grain), and atrophine, 1 mg. (1/65 grain) usually allay anxiety, relax spasm and suppress excessive secretion of mucus. Meperidine hydrochloride, 100 mg., is considered safer by some observers. It is to be remembered that narcotics and barbiturates have some antidiuretic action.

Cardiac tonics intravenously, as ouabain (0.25 mg.), digitoxin (1 mg.) or lanatosid C (0.8 mg.), may be given intravenously if one can be certain that the patient has had no digitalis within two weeks. In persisting pulmonary edema one may give a hypertonic infusion of 50 cc. of 50 per cent dextrose to which has been added 0.5 Gm. of aminophylline and 0.5 Gm. of ascorbic acid after giving a mercurial diuretic, as 40 mg. of thiomerin® (the disodium salt of N [gamma-carboxymethyl-mercaptomercuri-beta-methoxy] propyl camphoramic acid) subcutaneously.

Normal Sinoatrial Cardiac Mechanism.—Normal sinoatrial cardiac mechanism is most conservative. It is desirable to maintain or reestablish sinoatrial rhythm if disorders of the cardiac mechanism persist. In the cases of atrial fibrillation and failure, adequate digitalization is in order. If, after digitalization, the failure persists, one is justified in undertaking to restore the normal mechanism with quinidine sulfate.

Rest.—Morphine judiciously used is a great boon to all patients with heart failure, as it reduces the exhausting respiratory effort of dyspnea decubitus. Addiction, however, is easily induced, and it must be guarded against. Adequate rest is necessary to improve the myocardial efficiency and the relief of pulmonary congestion. One should decrease all physical strain, by making the patient as comfortable as possible, which contributes definitely to the reestablishment of circulatory equilibrium.

The more refractory cases of congestive heart failure may not be relieved satisfactorily and edema may persist, in spite of rest, diet and digitalization, and sinoatrial rhythm. The physician may resort to the use of coronary vasodilators to improve myocardial function and diuretics to remove edema and improve circulatory efficiency. The myocardial function may not be improved adequately by the vasodilating effects of nicotinic acid and papaverine and the older favorites, orally administered xanthine diuretics, as theobromin,* theophylline and aminophylline. The potent mercurial diuretics, especially those combined with the theophyllines, must usually be used. The newer one, containing the sulfhydril radical, may be the one of choice as it is less toxic.

A NEW LESS TOXIC, MERCURIAL DIURETIC

Burch and Reaser [15] demonstrated that sodium output in the urine was increased seventy-five fold as a result of mercurial xanthine diuretics. These drugs are generally accepted as the first rank preparations for the mobilization of sodium and the drugs of choice for the patient with intractable edema. Novasurol® (merbaphen) was soon found to be too toxic. Salyrgan® (mersalyl) was then produced and found to be less toxic. It had to be given intravenously and was irritating and potentially toxic. It occasionally produced necrosis of the renal tubular epithelium. The Hungarians [17b] added acid theophylline to neutralize the excessive alkalinity of the mersalyl and found that potency was enhanced.

My co-workers and I [17a] had found that mersalyl produced diuresis by decreased tubular reabsorption, while aminophylline increased glomerular filtration and neutralized excessive alkalinity. We therefore combined the two and observed augmented diuresis and no more instances of destruction of the epithelium or renal tubules. Mersalyl and theophylline (salyrgan® with theophylline) or mercurophylline (mercuzanthin®) have been widely used with occasionally evidence of toxicity. Other less toxic combinations of mercurials were sought. At least two instances of fatal ventricular fibrillation were electrocardiographically recorded during and following the intravenous injection of another mercurial diuretic. Mersalyl with theophylline and mercurophylline were too irritating to be injected in any way except deep in the muscle with local anesthesia or intravenously. Meralluride sodium (mercuhydrin®

sodium), a urea succinyl mercurial theophylline combination, was demonstrated to be a potent diuretic and less toxic by Chapman and Shaffer. It was found to be well tolerated, causing little, if any, pain when injected intramuscularly.

The emphasis, however, has now been shifted from potency to the toxicity factors in mercurial diuretics. Lehman [18] combined MT 6, chemically similar to mercurophylline except that the sulfhydril replaces theophylline, with sodium thioglycollate and found that the sulfur had profoundly decreased the toxicity and irritating effects of the mercurial. He noted a tremendous increase in tolerance of the new MT 6, mercaptomercurial, when it was compared with the older diuretics. This combination is theoretically an ideal and safe mercurial diuretic. Lehman [18] found that thiomerin® was 160 times less toxic than meralluride sodium. It could be injected subcutaneously without producing any significant pain or irritation. This marks a definite forward step in the development of organic mercurial diuretics. It might be well for one to test every patient for hypersensitivity to mercury by injecting subcutaneously 0.25 cc. to 0.5 cc. of thiomerin® before giving the 2 cc. dose that contains 78 mg. of mercury.

Summary of Clinical Diuretic Results

Drug	No. of Cases	Total Urine c.c. First Day	Average Increase in Output of Urine, Percentage			
			First Day	Second Day	Third Day	Total
Mercurophylline *	611	2,502	476	151.6	79	707.4
Mersalyl and theophylline *	125	2,567	341	120	62	526
Meralluride sodium (intravenously)	46	1,836	264	132	105	501
"Thiomerin" with ammonium chloride (intravenously)	14	4,475	...	...	..	...
"Thiomerin" without ammonium chloride (intravenously)	20	2,507	305	132	97	536
"Thiomerin" with ammonium chloride (subcutaneously)	38	3,483	...	...	..	...
"Thiomerin" without ammonium chloride (subcutaneously)	97	2,011	261	108	106	475

* Data from previous studies of diuresis (Hermann [1,15]).

Thiomerin® was submitted to me with a grant for further experimental study and extensive clinical trial. The New York University group in Bellevue Hospital had obtained very encouraging results, as my co-workers and I have, but it will take extensive studies before the ultimate evaluation is made. I have observed few and minimal reactions from thiomerin,® even when given intravenously, in 20 cardiac patients, and adequate diuresis was produced with the new drug given subcutaneously to 135 patients. The results shown in the table were obtained with this preparation, given under my supervision, by Dr. John W. Chriss, Dr. Milton R. Hejtmancik and Dr. Paul M. Sims. The potency and low toxicity warrant continued extensive use of the thiomerin® to establish its ultimate safety factors, especially in the rare patients whose heart muscle is hypersensitive to mercury.

SUMMARY AND ADDITIONAL MATERIAL ON THERAPEUTIC PROCEDURES IN MYOCARDIAL INSUFFICIENCY

The modern treatment of a patient with heart disease calls for the prevention of potential failure and prompt relief of the first disturbing or ominous symptoms. Steps are taken to guard against and remove the precipitating factors, alleviation of the perpetuating factors and alteration of the predisposing factors in so far as is possible. Recumbency allows blood and edema fluid to flow into the chest and waterlog the lungs; therefore, the sitting upright posture is preferable.

Rest in the position most comfortable to the patient removes some of the demands on the circulation. The physical strain of severe dyspnea may be relieved by oxygen (mask or tent) and responds to the hypodermic injection of morphine sulfate (11 to 16 mg.). In cardiac asthma of acute left ventricular failure meperidine hydrochloride, 50 to 100 mg., given intravenously may be safer than morphine.

Diets low in sodium and with acid ash, as Karrell's daily ration of 4 glasses of milk with 8 slices of dry, salt-free, toasted bread, often helps to start diuresis. Newburgh,[19] Schroeder,[20] Schemm [21] and Wheeler, Bridges and White [22] have worked out more elaborate low sodium, neutral or acid ash regimens, with free fluid intake. Water, dilute hydrochloric acid, or acid salts as ammonium chloride are often helpful in promoting diuresis. Barbiturates and narcotics have some antidiuretic effect.

The sodium storage may be reduced by sharp curtailment of intake. A sodium-free diet is difficult to prepare and even a low salt diet with salt substitutes is not easily maintained. It is often most practical to insist on only moderate restrictions and the judicious use of the mercurial diuretics rather than enforce an inadequate diet. One may reduce the sodium chloride content of the patient at regular intervals with mercurial diuretics.

Water Intake.—Schemm [21] advocated forced fluids by mouth and 5 per cent dextrose solution slowly given by vein in amounts up to 4 liters a day. I have not had much success with this regimen; yet Schemm emphasized the importance of and need for adequate fluid intake. One should administer distilled water in quantity to satisfy normal needs, namely, 2,500 to 3,500 cc. The amounts must be increased in cases of fever or in the patient with low concentrating ability of the kidney. It is admitted that cellular dehydration may be present in the brine in cardiac edema. However, forcing fluids by giving intravenously 5 per cent dextrose in a patient with congestive heart failure is not without danger. It may be accomplished with great care by a very slow drip method. I have seen several instances of acute left ventricular heart failure following intravenous injection of 5 per cent dextrose solution in 2 to 4 liter amounts. The retained sodium determines the volume of the fluid retained in the body.

Diuretics.—Diuretics, notably the organic mercurials combined with xanthines, and now with sulfhydril, have been shown to increase tremendously the urinary flow and sodium output. Pulmonary as well as subcutaneous edema is promptly dissipated, and as a result the patient feels much better, his breathing becomes

18. Lehman, R. A.: Further Studies on Acute Toxicity of Mercurial Diuretics, Proc. Soc. Exper. Biol. & Med. **64**: 428, 1947.

19. Newburgh, L. H., and McKinnon, F.: The Practice of Dietetics, New York, The Macmillan Company, 1934.

20. Schroeder, H. A.: The Importance of the Restriction of Salt as Compared to Water, Am. Heart J. **22**: 141, 1941.

21. Schemm, F. R.: A High Fluid Intake in Management of Edema, Ann. Int. Med. **17**: 952, 1942; High Fluid Intake in Management of Edema, Especially Cardiac Edema: Clinical Observations and Data, ibid. **21**: 937, 1944; High Fluid Intake in Management of Edema: Review with Some Comments After Four Years, Journal-Lancet **66**: 50, 1946.

22. Wheeler, E. O.; Bridges, W. C., and White, P. D.: Diet Low in Salt (Sodium) in Congestive Heart Failure, J. A. M. A. **133**: 16 (Jan. 4, 1947.

easier and he feels stronger. It must not be forgotten that potent mercurial diuretics may produce confusing symptoms of primary salt depletion, especially in patients on low sodium diets.

Small doses of a mercurial diuretic will often interrupt a chain of nightly paroxysms of dyspnea. I am not yet ready to advocate repeated full doses given intravenously or intramuscularly (usually 2 cc., 78 mg.) of mercurial diuretics twice daily until the ideal weight is reached. I fear that the mercury may be accumulated and be toxic to the heart and kidneys. I have seen anuria produced by physicians who had neglected to examine the urine before injection of the mercurial. The new mercurial sulfydril thiomerin® is well tolerated subcutaneously, is least toxic and therefore safer and adequately effective.

Digitalis.—Digitalis therapy improves the myocardial tone and increases cardiac output and therefore warrants consideration. In acute left ventricular failure, ouabain (strophanthin) 0.25 mg. given intramuscularly is probably safer than any digitalis preparation, even digitoxin, in a dose of 1 mg. Digitalis is most useful in the control of mechanism disorders like atrial fibrillation. Digitalization will usually relieve exertional and decubital dyspnea.

Some modern experimentalists have concluded that the use of digitalis is obsolete and that digitalization may aggravate the situation if the cardiac output is normal and in full response to the diastolic stretch. When this relationship fails, the effect of digitalis is limited at best, as the cause persists. Some feel that digitalis maintains cardiac tone and delays dilatation and hypertrophy and should be started as soon as a diagnosis of "heart disease" is established. Proofs of these contentions have not yet been established.

CONCLUSIONS

I cannot agree with those who argue against the need for digitalization when the rhythm is regular. Others feel that strict adherence to a low sodium regimen is all that is necessary to prevent edema formation.[22] A very low sodium diet is most unpalatable and difficult for many patients to maintain.

Since the edema can be cleared by mercurial diuretics which may be repeated at intervals, it would seem practical to use this means of getting rid of accumulated sodium. Thiomerin,® given subcutaneously, is a practical and safe diuretic for this purpose.

I believe that each of these methods has a place in the therapy of myocardial insufficiency, as has been discussed in detail in the previous paragraphs. Sometimes one method may be employed first, sometimes another, and again any combination may be instituted at the same time. In urgent situations all methods are applied as soon as possible, and generally the judicious use of the combined methods brings about most satisfactory results.

Radioactive Digitalis.—Instead of irradiating digitalis, we are now getting it in a radioactive form. In airtight glass jars, foxglove is being grown in an atmosphere of radioactive carbon dioxide. While only small quantities of this radioactive digitalis obtained in this fashion have yet been produced, it is now being studied in animals in Atomic Energy Commission laboratories, and we hope will bring further understanding of the manner in which the heart operates.—From an address by David E. Lilienthal, Chairman, Atomic Energy Commission, before the American College of Physicians, New York, March 31, 1949.

SOME FACTORS INFLUENCING RESPONSE OF CANCER TO RADIATION

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London, England

During the past two decades great advances have been made in the treatment of cancer by radiation. These advances are largely the result of physical researches.

In Great Britain, the greatest importance has been attached to the close collaboration of radiotherapist and physicist. In all radiotherapy centers this partnership has for many years been regarded as essential to the efficient carrying out of the patient's treatment. Much time has been devoted to the establishment of methods of accurate dosage measurement for all types of radiation therapy, whether it be external irradiation from a roentgen or radium beam or local irradiation by radium needling or applicators. Whichever of these types of treatment is used, the dose delivered to the tumor is recorded in roentgens in the tissues at the site of the disease. These methods of accurate dosage measurement have done much toward placing the radiation treatment of cancer on a scientific basis; they enable an accurate comparison to be made of the technics used and the results obtained in different centers throughout the world. A description of these technical methods is not within the scope of this paper. Other speakers have dealt with the measurement of tumor dose in interstitial radiation, and I have described elsewhere methods devised for the measurement of tumor dose in external radiation by a roentgen or radium beam. It is sufficient here to say that methods have been devised for accurately directing the beam of radiation and for estimating the dosage delivered to the tumor. Not only can one estimate the dosage at selected points in the tumor, glands and skin by instruments such as Green's measuring caliper, but, with a new instrument, the dose contour finder designed by Flanders, one can obtain a three dimensional picture of the dosage distribution throughout the whole of the cancer-bearing area. Such methods are of the greatest assistance in the attempt to deliver an equalized dose throughout the whole volume of tissue treated and are of inestimable value in guiding the radiotherapist in his prescription of treatment. The dosage necessary to destroy a growth is not far removed from that which will produce radionecrosis. Without careful planning of the treatment, outlying fringes may easily receive too little radiation, while regions in the center or at the junctions of the fields of radiation are liable to suffer from overdosage. We are all only too familiar with the unhappy sequelae of overdosage in the form of bone and cartilage necrosis. These methods of accurate dosage measurement and control have greatly reduced the number of such cases of radiation necrosis.

Methods have also been devised for estimation of the dose delivered to parts of the body other than the tumor—the so-called integral dose—and by this means severe constitutional reactions can be avoided.

With these improved methods of dosage estimation and control, the part played by radiotherapy in the treatment of malignant disease is considerable. Elsewhere I have spoken of the value of palliative treatment in cases in which the disease is too advanced to justify any expectation of a permanent cure.

Read before the Section on Radiology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

In addition to their assistance in carrying out the patient's treatment, these technical methods have helped in many ways. There are three separate instances of this in my own work which I should like to mention. Firstly, in routine radiotherapy departments the radiation most commonly used is that derived from a 200 kilovolt roentgen ray set; this gives a much longer

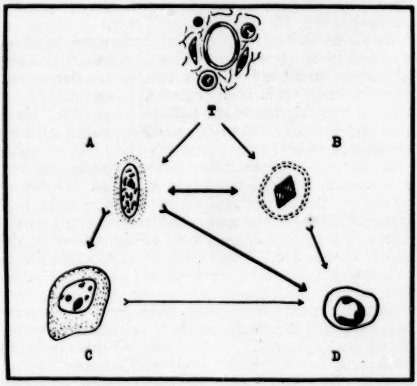

Fig. 1.—Diagrammatic representation of the four cell categories found in most epithelial tumors. Viable cells: *A*, resting cell; *B*, mitotic cell. Nonviable cells: *C*, differentiating cell; *D*, degenerating cell. Tumor bed (*T*) symbolizes the vessels, stroma and cells surrounding the tumor strands.

wavelength than that derived from radium gamma rays which are equivalent to 1,700,000 volt roentgen rays. It was thought possible that the shorter wavelength radiation from radium might have a different biologic effect from that of 200 kilovolt roentgen rays. In order to determine, therefore, whether there was any difference in the response of tumors to the two kinds of wavelength, an experimental comparison between a radium beam and a 200 kilovolt roentgen ray beam in the treatment of cancer of the mouth and throat has been carried out at the Medical Research Council's Radiotherapeutic Research Unit, London.[1] The experiment was very time consuming. The results have been assessed by a

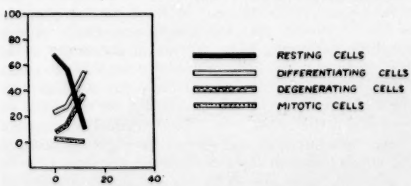

Fig. 2.—Graph of cell counts in a tumor showing a favorable response to radiation. The horizontal row of figures at the bottom represents time in days. The vertical column of figures at the left shows cell counts per hundred cubic centimeters.

new statistical method developed by Boag for estimating from interim clinical results the proportion of patients cured. The results do not indicate that the wavelength of radiation per se has any significant effect on clinical results. With still higher voltage roentgen rays one cannot therefore confidently expect any improvement in clinical results due solely to the shorter wavelength of the radiation. The great advantage that can be expected from the higher voltages is not a different biologic effect but a greatly improved dosage distribution within the patient, which is possible with higher voltage roentgen rays. It will be appreciated that without the assistance of accurate dosage measurements, it would not have been possible to carry out this experiment with an accuracy sufficient to enable any confidence to be placed in the results obtained.

Secondly, my colleagues and I were able with the help of these technical methods to insure that in the treatment in a series of cases of mouth cancer, a comparable dose of radiation was delivered to both primary tumor and glands. It was thus possible to compare their relative radiosensitivity. Contrary to the opinion generally held, we found that when treated with comparable dosage the glands offer no greater resistance to radiation than does the primary tumor.[1] It would appear, therefore, that one must search for some other explanation to account for the higher mortality rate universally found in patients with lymph node involvement.

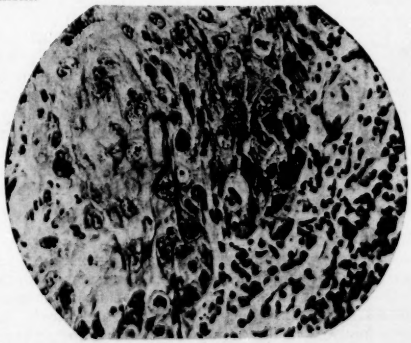

Fig. 3.—Photomicrograph before treatment of a tumor which showed a favorable response to radiation.

Thirdly, these technical methods have made it possible for a particular technic of treatment to be accurately repeated; they have enabled us to be certain that precisely the same dosage is being delivered to patients having similar lesions. By this means, we have found that epitheliomas in the mouth similar in clinical and microscopic appearance, when treated by precisely the same technic, do not necessarily give the same response to radiation.

There is not time to enlarge on the significance of these conclusions here. To one, at least, I wish to refer again later in this paper. The point I wish to stress now is that it would not have been possible to arrive at such conclusions without the assistance of methods of accurate dosage measurement.

In any future work with supervoltage roentgen rays or neutrons the physical control of dosage becomes increasingly important, and it is therefore essential that these technical methods continue to be developed. From a comparison of the clinical results of radiation treatment in recent years with those obtained some years ago, it has become clear, however, that the great advances which have been made in the technic of treatment have not resulted in a correspondingly large

1. Wood, C. A. P., and Boag, J. W.: Researches in the Radiotherapy of Oral Cancer, Medical Research Council, Special Report Series, London, His Majesty's Stationery Office, to be published.

increase in the proportion of patients cured. These improvements in technic were an essential preliminary step, and I have attempted to show the importance of the role they have played. I would emphasize, however, that it is in general no longer possible to ascribe failures in radiotherapy to an inability to deliver the predetermined dose of radiation to the tumor. It would appear that there are other factors than physical dosage which have a fundamental effect on the response of tumors to radiation.

A new method of approach is indicated, and the problem has become one of radiobiology. In an attempt to discover what biologic factors determine a satisfactory response to radiation an investigation has been carried out in the Medical Research Council's Radiotherapeutic Research Unit, London, in collaboration with Spear and Glucksmann of the Strangeways Laboratory, Cambridge.[1] This work deals with only one aspect of the whole problem, but it is, I think, of sufficient interest to warrant my giving the main outline of the work and the conclusions to be drawn from it.

In a series of patients treated by radiation for epitheliomas of the oral cavity a preradiation biopsy specimen

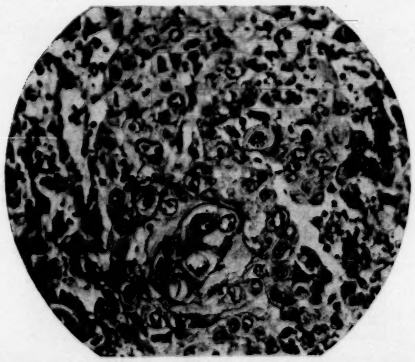

Fig. 4.—Photomicrograph on the fifth day of treatment, after 1,000 r to a tumor which showed a favorable response to radiation.

was taken in each case from the growing edge of the tumor, and then serial biopsies were made throughout the course of treatment. Cell counts were then made by Spear and Glucksmann in comparable areas of these biopsies.

The diagram (fig. 1) from the Strangeways Laboratory depicts the two types of cells in epithelial growths. The viable cells are the resting and mitotic cells—the nonviable are the differentiating and degenerating cells. The object of radiation is to convert viable into nonviable cells. This is done, firstly, by making the resting cells incapable of further cell division either by causing them to differentiate and so become sterile or by causing their immediate breakdown into degenerate cells and, secondly, by causing the breakdown of mitotic cells into degenerate cells, so preventing further cell division. These changes developing in individual tumors as a result of radiation may be followed by cell counts in serial biopsies and expressed in the form of graphs.

Figure 2 shows the response of a tumor in which radiation promoted progressive increase of differentiation and final disappearance of all the resting and mitotic cells, that is, of all viable cells so indicating the destruction of the tumor tissue and final disappearance of growth. This type of graph is typical of a favorable response to treatment.

Figures 3, 4 and 5 are photomicrographs of the tumor depicted graphically in figure 2. The first biopsy specimen (fig. 3), taken before treatment, shows resting cells and mitotic cells.

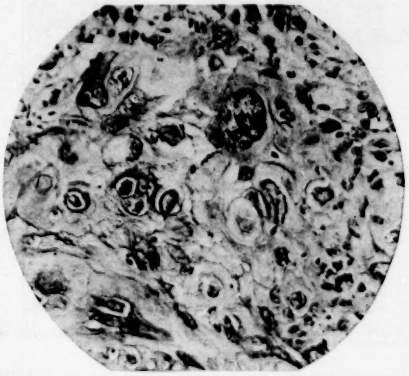

Fig. 5.—Photomicrograph on the twelfth day of treatment, after 2,000 r to a tumor which showed a favorable response to radiation.

The second biopsy specimen (fig. 4), taken on the fifth day of treatment, after 1,000 r had been given, shows an increase in the degree of differentiation. The proportion of the resting and mitotic cells has decreased, while the differentiating cells have increased. The degenerating cells have also increased in size, and two horny pearls are visible.

The third biopsy specimen (fig. 5) taken on the twelfth day of treatment, after 2,000 r had been given, shows still further differentiation. The resting cells have now almost all disappeared and have been replaced by keratinizing, that is, differentiating, cells. These are shown with darkly stained cytoplasm. They are on their way to cell death and will in due course be cast off as cell debris. The clinical end result in this case is in agreement with the histologic prognosis. The

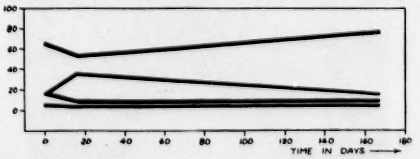

Fig. 6.—Graph of cell counts in a tumor showing an unfavorable response to radiation. The top bar represents resting cells; the second bar represents differentiating cells; the third bar represents degenerating cells, and the bottom bar represents mitotic cells. The horizontal row of figures at the bottom shows time in days, and the vertical column of figures at the left shows cell counts per hundred cubic centimeters.

patient had an extensive epithelioma of the soft palate just extending onto the hard palate. He also had lymph node involvement in the neck. After radiation both primary growth and enlargement of the nodes disappeared, and he has remained symptom free for five years, without any recurrence of the growth, at the time of writing.

Figure 6 shows the response of a tumor in which there are only minor variations in the cell counts, indicating the persistent growth of the tumor and an unsatisfactory response to radiation.

Figures 7, 8 and 9 are photomicrographs of the tumor depicted graphically in figure 6. The biopsy

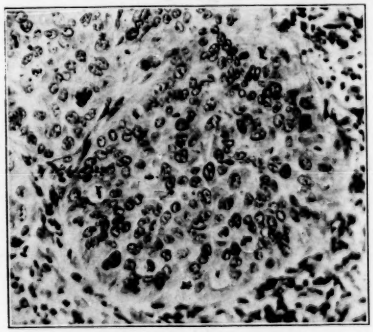

Fig. 7.—Photomicrograph before treatment of a tumor showing an unfavorable response to radiation.

specimen shows a persistance of actively growing tumor tissue, and the only noticeable change is a temporary increase in cell size after 1,000 r had been given.

The first biopsy specimen (fig. 7) was taken before treatment began. The second biopsy specimen (fig. 8) was taken after 1,000 r had been given, five days after the beginning of treatment; the third biopsy specimen (fig. 9) was taken after 2,000 r had been given, ten days after the beginning of treatment. Looking at any of these biopsy specimens, every pathologist would give the diagnosis of an actively growing squamous cell carcinoma. There are only minor changes in the cell population—a very slight decrease in mitotic activity

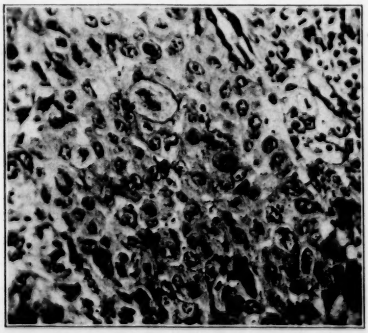

Fig. 8.—Photomicrograph on the fifth day of treatment, after 1,000 r to a tumor showing an unfavorable response to radiation.

and an equally slight increase in the incidence of degenerating cells.

The clinical end result in this patient is again in agreement with the histologic prognosis. This patient had an extensive ulcerating epithelioma involving the right tonsil. No glands were present. The growth never responded to radiation, and the patient died within eleven months of starting treatment.

The biopsy observations can be regarded as typical for the whole tumor only if the dose delivered to the biopsy site is comparable with that given to other parts of the tumor.

Spear and Glucksmann found that by these cell counts a prognosis could be made for the malignant tissue in the treated area and that the eventual response of individual tumors could be foretold.

We found that in our series of carcinoma of the oral cavity an accurate prognosis was made concerning the end clinical result in the large majority of cases. In a series of 90 cases there was agreement between the histologic prognosis foretold by these cell counts and the subsequent clinical result in 75 cases. It will be seen that in only 1 case in which the histologic prognosis was favorable was the clinical result unfavorable. This is highly significant, and a statistical analysis shows that, if there were no correlation between prognosis and clinical result, agreement such as this would be obtained merely by chance once only in 100,000,000 trials.

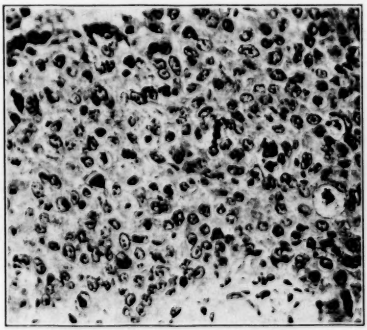

Fig. 9.—Photomicrograph on the tenth day of treatment, after 2,000 r to a tumor showing an unfavorable response to radiation.

These cell counts have led to the conclusion that an increase following radiation in the proportion of differentiating cells distinguishes those epitheliomas which will respond favorably to radiation from those failing to respond. The promotion of differentiation, therefore, appears to be an important factor in the sterilization of tumor tissue. This increase in differentiation takes place most frequently, but not always, in tumors of the differentiating type, though anaplastic tumors do sometimes differentiate as a result of radiation treatment.

The capacity to respond to radiation by differentiation is more likely to be present in the differentiating type of tumor than in the anaplastic; but, as Glucksmann pointed out, it does happen that in some differentiating tumors this capacity appears to have reached its full limits while in some anaplastic tumors there is a latent capacity for differentiation.

The promotion of differentiation by radiation depends on an inherent capacity in the tumor cells, and such changes in individual tumors can be recognized only by examination of serial biopsy specimens. I have already made reference to the fact that we found that

two growths which appear similar both clinically and histologically, when treated by precisely the same radiation technic, do not necessarily give the same response. This difference in response would be explained if the cells of one tumor possessed the capacity to differentiate after radiation, while in the other tumor this capacity was lacking.

It has for many years been a well recognized fact that the highly differentiating epitheliomas of the skin give far better clinical results to radiation treatment than epitheliomas arising in such sites as mouth and throat. These better results in the cutaneous tumors are not due to any refinements in radiotherapeutic technic, but must be ascribed to difference in the incidence in these two sites of tumors which respond to radiotherapy by differentiation.

Inability to cause differentiation is one cause of failure of radiation treatment. These cell counts indicate that another cause may be the persistence of precancerous lesions.

Figure 11 shows a stretch of untreated epithelium of the tongue with both normal and precancerous areas. In the normal area there are mainly large pale differentiating cells and only a single layer of resting cells

CLINICAL RESULT OF ORIGINAL TREATMENT \ HISTOLOGIC PROGNOSIS	F	U	TOTALS
F	16	14	30
U	1	59	60
TOTALS	17	73	90

Fig. 10.—Carcinoma of the mouth and throat. Analysis of the agreement between histologic prognosis and clinical result (F, favorable; U, unfavorable).

in the basal layer. In the precancerous area the small darkly stained resting cells have increased to four or five basal layers. The resting cells have relatively little cytoplasm and a relatively large nucleus; this is why they are stained darker than the larger differentiating cells which have relatively more cytoplasm.

The main characteristic of the precancerous change consists in a relative increase in the number of resting and dividing cells, i. e., the viable cells, and a relative decrease in the number of differentiating cells. The difference in the relative proportions of resting to differentiating cells for normal and precancerous areas is well illustrated in this figure. The cell counts have shown that a precancerous area near a cancer included in the treatment field may respond differently to radiation from the area of frank malignancy. It was found that in some patients it is possible to sterilize the area of frank malignancy while the precancerous lesion persisted in spite of radiation, and subsequently a new tumor (wrongly called a recurrence) developed in the treated area.

Figure 12 shows the reaction to 1,000 r of a normal stretch of epithelium in a carcinoma of the tonsil. The basal layer of the epithelium is denuded of cells which have degenerated and which are still visible as degenerate cells or marked by gaps. Only a few resting cells remain.

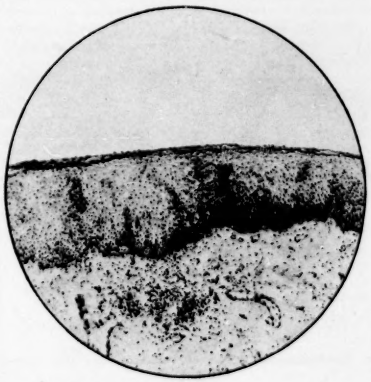

Fig. 11.—Photomicrograph showing a stretch of untreated epithelium of the tongue with both normal and precancerous areas.

Figure 13 shows a precancerous stretch of epithelium after the same time, five days, and after the same dose, 1,000 r. Here the basal layer is complete, one cell layer thick and composed of resting and mitotic cells.

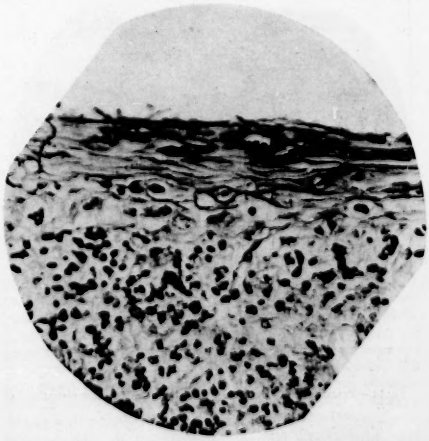

Fig. 12.—Normal stretch of epithelium after administration of 1,000 r.

Figure 14 shows a precancerous area of the epithelium on the fifteenth day and taken after 2,000 r had been administered. The basal stratum is now at least three cell layers thick and composed of resting and mitotic cells. There are a few degenerate cells at the border between the basal layer and the keratin-

ized layers. These biopsies illustrate that the mitotic activity may persist in a treated precancerous lesion and that in such an area, even with radiation treatment, an increase in the proportion of viable resting cells may develop. Thus, in some patients, although the response of the malignant tissue is favorable, as indicated by an increase in differentiating cells, yet the prognosis is unfavorable if in later biopsies precancerous lesions persist. This persistence of precancerous lesions can be recognized only histologically, and months or years may elapse before frank malignancy supervenes and produces clinical symptoms. About one third of the failures in treatment in our series of carcinoma of the mouth and throat was due to the existence of precancerous lesions. It is interesting that the clinical history of such patients showed decided difference in the incidence and duration of "temporary healing," as compared with that of patients in whom frankly malignant tissue persisted in spite of treatment—80 per cent of patients with precancerous lesions enjoyed a period of complete freedom from symptoms.

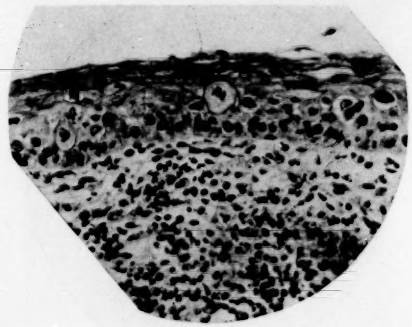

Fig. 13.—Precancerous stretch of epithelium after administration of 1,000 r.

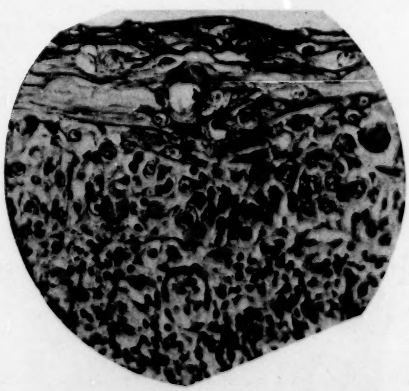

Fig. 14.—Precancerous stretch of epithelium after administration of 2,000 r.

It is not possible for the end clinical result of radiation on a tumor to be judged by the immediate macroscopic effect, such as shrinkage in size of the tumor, but by these cell counts it is possible to judge what the end clinical result will be.

CONCLUSION

The work of Spear and Glucksmann stresses the importance of tumor type. The problems of nondifferentiating epitheliomas and precancerous lesions are subjects for future research. It appears as if entirely different treatment may be necessary for different types of epitheliomas arising in the same site and that further improvements in physical technic are unlikely to bring about better results without due regard to tumor biology. It is felt that advancement in knowledge of the fundamentals of radiobiology leading to a better understanding of the action of radiation on the living cell offers the greatest possibility of any improvements in the radiation treatment of malignant disease.

ABSTRACT OF DISCUSSION

Dr. Douglas Quick, New York: Dr. Wood has been devoted to improving the accuracy of therapy by irradiation. Her approach has been methodical and carefully planned, first by direction, then by localization, next by calculations of exact amounts at various points of distribution and now an attempted approach through radiobiologic channels. As a clinician long associated with radium, I have never been quite able to accept the accumulating evidence in favor of no variation in tissue effect with varying qualities of radiation. Dr. Wood comes nearer than anyone else to convincing me that there is no difference in effect between roentgen rays and the gamma rays of radium, other than a quantitative one—almost, but not quite. However, I cannot accept Dr. Wood's second assumption, namely, that the primary growth and its metastatic node show equal response to equal quantities of radiation. My statement presumes to oppose pure science—that is, clinical measurements—by opinion. However, careful observations over a period of years and under many and varying conditions are of some value. It is my experience that the metastatic lymph node is regularly more resistant to irradiation than is its parent or primary growth. I see nothing illogical in the fact that there is a higher mortality rate in patients with metastatic nodes than in those without them. It is not a question of radiation at all. It is because that particular growth had extended into or through the lymphatics before any treatment was instituted; it was no longer a local process. When it comes to the study of serial biopsies of patients under treatment by radiation, and the drawing of conclusions attributing the response to radiobiologic reactions, I feel that a tumor pathologist should take over on the discussion, rather than to have the humble opinion of a cancer clinician. Regard for the high caliber of Dr. Wood's work forces me to say that my comment is not to be interpreted as criticism. It becomes a matter of assessing the cause or influence chiefly responsible for bringing about the changes noted histologically. In this country it has been for many years generally accepted that Broder's classification of tumors, based largely on their degree of differentiation, has served as a fairly accurate guide to the anticipated response to a given unit of radiation. I wonder whether Dr. Wood's interpretations are an elaboration and an effort at refinement of that classification as therapy is progressing, and yet I am not quite able to interpret it as such. We have for long known that many clinical factors influence the response in seemingly identical cases to treatment by irradiation. I might refer to just two, that is, secondary anemia and local sepsis. We are all familiar with the improved response to irradiation when these conditions are corrected. They are

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controllable today, within reasonable limits and without undue effort, through the use of antianemic drugs and transfusions and by the antibiotics and local hygiene. I would like to suggest that a study such as Dr. Wood has so painstakingly done would be more convincing if all the cases, in addition to similar histologic standards and anatomic locations, be brought to a minimum clinical acceptance standard as well, before institution of the study and treatment. If all patients were selected within a middle life age level, with serious chronic diseases eliminated, with the blood picture brought up to a minimum standard and local and general sepsis eliminated actively by adequate local measures, plus the vigorous use of such antibiotics as penicillin and sulfonamide drugs, if necessary, the changes then found in serial biopsies would be more impressive and less liable to controversial interpretation.

DR. CHARLES L. MARTIN, Dallas, Texas: I, too, wish to express my appreciation to Dr. Wood for her excellent presentation. I am not capable of discussing much of her paper, but am certain that American radiotherapists will be interested in the material presented. Most of us agree that clinical results are not dependent on wavelength and that histologically similar tumors may behave differently when subjected to identical doses of radiation. However, a rather extensive experience with the radiologic treatment of metastatic cervical lymph nodes has led me to believe that the dose needed to eradicate squamous cell carcinoma in nodes is definitely larger than the dose needed for a primary lesion. It is my impression that most of the radiologists in this country are of the same opinion. Perhaps Dr. Wood will be good enough to give us some of her clinical data indicating that the radiosensitivity of cancer cells in the two locations is identical. The second portion of her paper, dealing with tumor cell counts as indicators of biologic effect, is a step in the right direction. Certainly, the time has come for us to develop some method of measuring biologic effect rather than ionization in terms of roentgens. In my opinion, the curability of cancer depends for the most part on the size of the total effective dose—and I wish to underline "effective"—regardless of how sensitive the cells may be to 1,000 or 2,000 gamma roentgens. In fact, my own best end results are obtained with tumors having the lowest radiosensitivity as we measure it in this country. Dr. Wood tells me that her total tumor dose amounts to about 6,000 gamma roentgens given in a period of about forty days. The effective dose with such factors is much smaller than that produced by 6,000 to 12,000 gamma roentgens given in seven days with low intensity radium needles with the technic favored by Sir Stanford Cade and myself. The larger doses should yield a higher percentage of cures. If this be true, her estimation of curability based on the cell response to only 1,000 to 2,000 gamma roentgens would not be applicable to technics such as ours. The work which she has presented is interesting, but I must admit a lack of enthusiasm for prognostic tests based on the administration of small amounts of radiation in short periods.

DR. B. W. WINDEYER, London, England: I was interested in the remarks made by Dr. Quick and Dr. Martin on radiosensitivity and differentiation. Dr. Quick said that it is generally accepted in this country that the Broders classification gave a rather good general index of radiosensitivity. I think that in Great Britain we have been increasingly disappointed with Broders' classification as an index of radiosensitivity. Personally, if I had an epithelioma of the lip, I would rather pray for one which was fairly well differentiated rather than an undifferentiated one, purely from the radiosensitivity point of view. I was also interested in Dr. Martin's view that the majority of his good end results were in cases in which there did not appear to be a great degree of radiosensitivity from a histologic point of view. I think that all these things link up somewhat with the report which Dr. Wood has given us, and I feel that the Broders' classification does not give a true view of radiosensitivity.

DR. CONSTANCE A. P. WOOD, London, England: Dr. Quick and Dr. Martin have referred to my comment on the response of glands to radiation. The accompanying figure shows a graphic test for correlation between tumor regression time and glandular regression time. Each dot represents a patient; the glandular regression time is plotted along one axis and the tumor regression time along the other. It may be seen that there are about as many cases in which the glands responded more readily than the tumor as there are cases in which the tumor responded more readily than the glands, and there is a tendency for long glandular regression time to be associated with long tumor regression time, and vice versa. My co-workers and I conclude, therefore, that when doses of the same order are delivered to both the glandular region and the primary tumor the glands offer no greater resistance to radiation than does the primary growth. This conclusion is supported by a study we made of the spread of cancer at the time of death in about 400 patients with oral cancer, who died with cancer present. We found that the majority of patients who had no glands present when treated died without cancer in the glands, while those who had glands present at the time of treatment had cancer in both primary site and

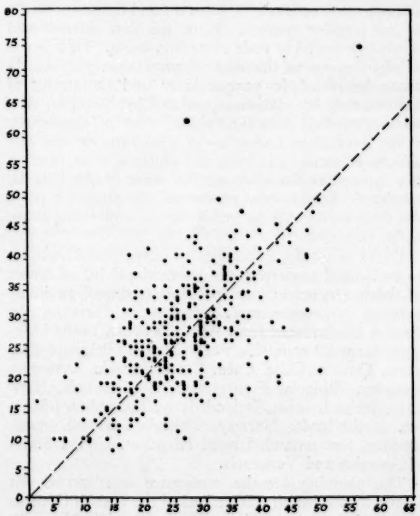

Fig. 15.—Graphic test for correlation between tumor regression time (shown in the horizontal row of figures at the bottom, in days) and glandular recession time (shown in the vertical column of figures at the left, in days).

glands at the time of death. These observations do not support the generally accepted view that cancer in secondary glands yields less readily to radiation than does the primary growth. I agree with Dr. Quick that the more anaplastic types of growth are the most radiosensitive. It is important, however, to distinguish between radiosensitivity and radiocurability. We have found that the more highly differentiated types of squamous epithelioma give better end clinical results to radiation, though their initial response is not so rapid as in the anaplastic types. A higher proportion of patients with the anaplastic types had glands present at the beginning of treatment, and this type gave poor end results in both primary site and glands. The better results universally obtained in the treatment of cutaneous and lip cancer than, for instance, in oral cancer, must be attributed not to any refinements in radiologic technic but to the greater incidence of differentiated tumors in the skin. The method I have described of using cell counts is just one way of attempting to determine what biologic factors influence the response of cancer to radiation. A biopsy gives only a static

picture of what is happening in the tumor. With the advent of radioactive isotopes, we have weapons which make a more dynamic picture possible; and considerable progress has already been made along these lines by work with isotopes in the United States. I think that a better understanding of the action of radiation on the living cell offers the greatest possibility of any improvement in the radiation treatment of malignant disease.

THE DOCTOR AND THE NEW INTERNATIONAL LIST OF DISEASES AND CAUSES OF DEATH

HALBERT L. DUNN, M.D.
Washington, D. C.

The First World Health Assembly, on recommendation of the International Conference, prescribed on July 24, 1948, the use of the International Statistical Classification of Diseases, Injuries, and Causes of Death by its member nations. Thus, the first international morbidity-mortality code came into being. This fact is of significance to the medical profession, particularly those interested in comparability and uniformity of useful morbidity statistics produced by hospitals, clinics and medical insurance plans. Also of significance is the international adoption of a uniform medical certificate of causes of death on which will be based a new procedure for selecting the cause of death to be tabulated. In this new procedure, the physician plays the determining role by indicating the underlying cause to be tabulated.

Every ten years, it has been an international tradition to revise and modernize the international list of causes of death. In accordance with this tradition, an international conference was convened in Paris by the French Government from April 26 to 30, 1948. Delegates from 29 countries were present: Belgium, Bulgaria, Canada, Chile, Cuba, Czechoslovakia, Denmark, Ecuador, Ethiopia, France, Greece, Guatemala, Hungary, Iceland, India, Ireland, Italy, Luxemburg, Mexico, Netherlands, Norway, Poland, Portugal, Siam, Sweden, Switzerland, United Kingdom, United States of America and Venezuela.

The planning for the conference was carried out jointly by the health statisticians of the French Government and the Interim Commission of the World Health Organization. The latter had appointed an expert committee to carry out the preparatory work under the terms of the arrangement of July 1946, concluded by the governments represented at the International Health Conference. A truly epochal advance in the field of disease classification was made at this Sixth Decennial Conference for the Revision of the International List. For the first time, there was established a combined statistical classification for both sickness and causes of death. Previously, only mortality data had been coded according to an internationally accepted statistical classification. Now it will be possible to classify and tabulate both illness and cause of death by the use of the same code, thus making possible comparable morbidity statistics among hospitals, among clinics, among health departments of states and among the health agencies of the nations.

Sweeping changes were incorporated in the new international list. However, most of these changes were made within the general structure of the previous international list of causes of death. The list was expanded considerably, from 450 to 610 categories for diseases and morbid conditions, with an additional 153 categories for the classification of external causes of injuries and 180 for the characterization of injuries in accordance with the nature of the injury. The injury classifications are supplements to the disease code, and either or both of these two supplemental classifications can be used, the first being particularly adapted for mortality coding and the latter for morbidity purposes.

The revised international list of diseases and causes of death consists of a list of three digit categories with a special fourth digit subdivision. The fourth digit subdivisions will be particularly useful for hospitals, clinics and specialized medical services. In contrast to the previous international code for mortality, the proposed classification is well adapted to mechanical tabulating equipment.

It should be mentioned here that the International Statistical Classification of Diseases, Injuries and Causes of Death is not intended to replace the Standard Nomenclature of Diseases and Standard Nomenclature of Operations, which is now being widely used in the United States. The function of a statistical classification is to provide quantitative data on groups of cases of allied diseases or conditions. On the other hand, a medical nomenclature is basically a list or catalog of approved terms for describing and recording clinical and pathologic observations which has important uses in the study of disease.

Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death.—A manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death will be published by the World Health Organization in an English, a French and a Spanish edition. There will not be a United States' edition of the list as has been true in previous decennial revisions. All of the English-speaking nations have agreed to purchase their copies of the manual from the World Health Organization in the interest of greater international comparability in classification. The World Health Organization plans to publish this work in two volumes; the first, about 375 pages in length, consisting of the introduction, list of categories, tabular list of inclusion terms, rules for medical certification and classification of the joint causes of death, and certain selected lists for special tabulation purposes. Of particular interest to hospitals are the special supplemental sections on special admissions without illness, and provisions for the count of various types of deliveries. For statistical purposes, the World Health Assembly has recommended, as an interim measure, the inclusion as liveborn infants all infants who after complete separation from the mother show any signs of life. The second volume, approximately 520 pages in length, will contain an alphabetic index. Volume 1 has been published and it is expected that volume 2 will be available for distribution about July 1, 1949.

Other innovations were made at the Paris conference. One which is of particular interest and importance to physicians is the introduction of an international form for the recording of the causes of death in the medical certification of death. The method by which the questions are asked on the medical certificate will be uniform on death certificates throughout the world. This suggested form of medical certification, which is

Chief, National Office of Vital Statistics, Public Health Service, Federal Security Agency.

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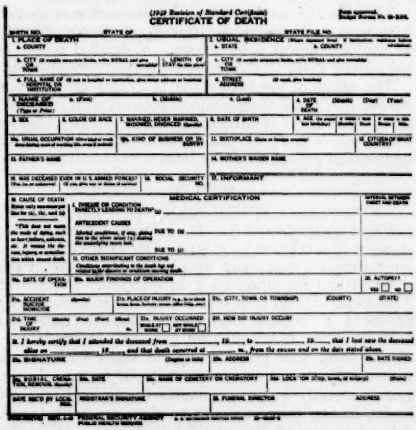
basically the same as that used in the United States for the past ten years, places on physicians the responsibility for indicating the underlying cause of death, namely, the disease or injury which initiated the sickness or morbid condition leading to death (fig. 1).

Another innovation which is a radical departure from the previous procedure in the United States involves the scrapping of the Manual of Joint Causes of Death for selecting the primary cause of death when several causes are given jointly on the death certificate. Previously, these rules have been applied by code clerks in the processing of mortality statistics. Now, however, the physician's judgment as indicated by the order of the diseases placed on the medical certificate form will be used generally for determining the underlying cause of death. For many years, physicians in this country have wanted to bring about this change. Now that the change is being made, it will be necessary for the members of the profession to strive to secure a better understanding of the medical cer-



(1949 Revision of Standard Certificate)
CERTIFICATE OF DEATH

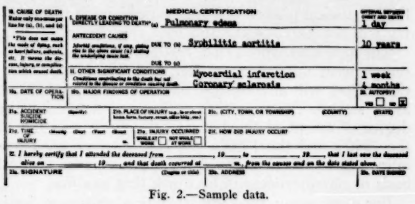
STATE OF

Fig. 1.—Standard death certificate.

tification in order to secure more adequate medical information on death. Ultimately, the success of this new type of certificate will depend on the willingness of the attending physician to fill in correctly the information on death certificates.

In this country, the international form of medical certification has been incorporated into the 1949 revised standard death certificate. Without exception, state health departments have agreed to incorporate the international wording into the state death certificate forms. Most physicians are familiar with the change in wording since all the county medical societies were consulted by the National Office of Vital Statistics of the Public Health Service in the planning of the revision of the death certificate. The medical certification form does not differ radically from the one which has been in use over the last ten years. It is anticipated that the inclusion of explicit directions on the face of the form will aid physicians in recording a more complete and more accurate response.

The statistical clerk who receives the death certificate must accept the physician's judgment as to the underlying cause without recourse to any arbitrary joint cause priority system, if the statement of the causes of death is not inconsistent within itself. A few simple rules have been retained to apply to those cases where the entries made by the physicians are obviously given in the wrong order. These rules have been recommended by the World Health Organization and will apply uniformly in every country using the new international list.



MEDICAL CERTIFICATION

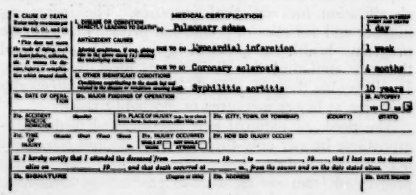
Fig. 2.—Sample data.

The following example shows how variations in reporting of causes of death may affect the selection of the cause of death to be tabulated, and how the new coding procedure differs from the old joint cause priority system.

On Jan. 26, 1948, a 54 year old woman was admitted to the hospital with coronary sclerosis and was discharged on February 5 as improved. This woman had been receiving treatment for syphilitic aortitis since January 1938. On June 9, 1948, she was readmitted with myocardial infarction. On June 16 pulmonary edema developed, resulting in death on June 17.

If, in the physician's opinion, the pulmonary edema developed from the syphilitic aortitis, the medical certification of death should be made out as in figure 2. On the other hand, if the pulmonary edema was the consequence of myocardial infarction, the cause of death should be reported as in figure 3.

Under the old joint cause rules, both certificates would have been assigned to syphilitic aortitis. However, under the new system the coder accepts the doctor's statement of the underlying cause unless it is inconsistent within itself. Therefore, since the cause leading directly to death, pulmonary edema, could have been the



MEDICAL CERTIFICATION

Fig. 3.—Sample data.

consequence of the train of events shown in part 1 of either certificate, the coder would make the assignment in accordance with the doctor's statement. The underlying cause of death shown in figure 2 would be syphilitic aortitis, and in illustration 3, heart disease involving coronary arteries. Thus, it is seen how important it is for the attending physician who knows most about the facts of the death to fill in the certificate to show the proper relation of the conditions involved in the death.

In agreeing on the new list and classification procedure, the international revision conference also recommended that, besides the usual primary cause tabulations, each nation publish annually a multiple cause tabulation designed to show the force of mortality for combinations of causes. To prepare such a tabulation, it will be necessary to code both the underlying and contributing causes for each death certificate filed. Unless the physician does his part of the job, the final statistical picture of health conditions in this country will not be complete and may even be misleading.

The new international list, certificate and coding procedure went into effect on Jan. 1, 1949. Many statistical offices will also use the old codes during 1949 so as to smooth the transition period and determine the degree of comparability between the death statistics of the 1940's and the 1950's. Of course, some comparability will be lost, but the change to a sounder medical basis of classification will be worth that sacrifice.

For many years, the comparability of causes of death in different localities of the United States and, with some reservations, international comparisons has been accepted. But, in the past, data on illnesses from two different hospitals even within the same state had to be qualified with explanations of whether they were using the Massachusetts General Classification, the United States Public Health Service Classification or some one of a dozen other classifications. Beginning Jan. 1, 1949 all hospitals availing themselves of the new manual will be able to compare their illness statistics. The Medical Research Division of the Veterans Administration is already classifying discharges from all Veterans Administration hospitals by the new morbidity-mortality code. Since the death certificates are classified in the same groups, the possibilities, which the Veterans Administration hopes to see materialize, of amassing data on relationships among the onset of a disease, its duration, the chances of survival, the frequency of complications and the relative value of different medical treatments, all seem to be closer to realization.

It is expected that the private and proprietary hospitals will also benefit by the use of the new international statistical code. These organizations have long expressed a need and a desire for a uniform morbidity classification for statistical purposes. The increasing number and varieties of public and private medical care programs, health and accident insurance plans will find the new statistical list designed to meet their needs. It will enable them to pool their experience statistically to arrive at better measures of morbidity risks.

The needs of national and international health programs can be met only through accurate and consistent mass statistical data. Just as public health thinking has progressed from saving lives to preventing disease, so the International Statistical Classification of Causes of Diseases, Injuries, and Deaths has kept step by making possible improved statistical studies of morbidity along with mortality.

American Legion Endowment Fund.—The American Legion raised a $5,000,000 endowment fund in 1925, now increased to $7,000,000, the income from which supports its National Child Welfare and Rehabilitation Services. The American Legion has expended since 1925 nearly $70,000,000 in financial aid to needy children and veterans, most of the money going for medical treatment, food and clothing.—American Legion News Service, No. 140.

EFFECT OF URECHOLINE® ON THE STOMACH, INTESTINE AND URINARY BLADDER

I. F. STEIN JR., M.D.
and
KARL A. MEYER, M.D.
Chicago

Recent interest has been aroused in the drug urecholine® [1] (urethane of beta methylcholine chloride) by the demonstration of the stimulatory action of this drug on gastric motility following complete vagotomy. This action was first reported by Machella [2] and confirmed by Grimson,[3] Stein,[4] Smith [5] and Dragstedt.[6] Starr and Ferguson [7] have reviewed the early literature and have demonstrated the value of urecholine® in postoperative urinary retention. The stimulatory effect of urecholine® on intestinal motility was reported by Youmans [8] and has been further studied experimentally by Postlethwait.[9]

METHOD

The effect of urecholine® on the stomach was studied by means of kymographic tracing of gastric motility as well as clinical observations. A detailed report of the gastric motility studies was previously published.[10]

The effect of urecholine® on intestinal motility was studied by clinical observation of patients with adynamic ileus. The effect of urecholine® on the urinary bladder was studied both by manometric determinations of intravesical pressure and by clinical observation.

RESULTS

The results are summarized in the table.

Effect on the Stomach.—The motility response of the stomach to urecholine® was studied by us in 12 instances after complete vagotomy by placing a balloon in the stomach and recording on a kymograph. In each of 3 patients, 5.0 mg. of urecholine® given subcutaneously produced a decided increase in gastric tone and motility in five to ten minutes (fig. 1). When 10 mg. of the drug was given orally, in eight trials, there was usually a moderate to pronounced increase in the gastric motility in thirty minutes to one and one-half hours, lasting thirty minutes to three or more hours. Administration of 10 mg. of urecholine® sublingually produced a slight increase in gastric motility in 1 instance, whereas 25 mg. sublingually produced satisfactory stimulation. Clinical observations were made

From the Hektoen Institute for Medical Research of the Cook County Hospital and from the Departments of Surgery of the Cook County Hospital and Northwestern University Medical School.

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9. Postlethwait, R. W.; Hill, H. V., Jr.; Chittum, J. R., and Grimson, K. S.: Effect of Vagotomy and Drugs on Gastric Motility, Ann. Surg. **128:** 184-194, 1948.
10. Stein, I. F., Jr.; Meyer, K. A., and Steigmann, F.: Studies on Vagotomy in the Treatment of Peptic Ulcer: IV. Changes in Gastric Motility and Effect of Drugs on Motility Following Complete Vagotomy, Surg., Gynec. & Obst. **87:** 465-471, 1948.

of an additional 10 patients who had symptoms of gastric retention following complete vagotomy. The usual dose was 20 to 30 mg. three times a day before meals. The results were satisfactory in all cases. One patient required intermittent therapy for as long as five months.

Urecholine® was used in 5 patients in whom symptoms of poor gastric emptying or gastric retention followed gastric resection without vagotomy. The drug was given orally in doses of 10 to 20 mg. ten to twenty days following operation. In 4 cases the results were excellent after the drug was given one to three times. In 1 case, repeated administration of the drug both orally and subcutaneously failed to produce gastric emptying. At reoperation, a kink was found obstructing the gastrojejunal anastomosis.

Results of Studies

Condition	Dose (Mg.)	Number of Cases	Satisfactory Stimulation	Variable Response	Failure
I. Effect on the stomach					
1. Postvagotomy motility					
sublingual	10	1	..	1	..
oral	10	8	5	3	..
subcutaneous	5	3	3	..	..
2. Postvagotomy gastric retention					
sublingual	10-30	3	1	1	1*
oral	10-30	8	7	1	..
3. Gastric retention after partial gastrectomy					
oral	10-20	5	4	..	1
subcutaneous	5	1	..	..	1*
Total		29	20	6	3
II. Effect on the intestine					
1. Adynamic ileus caused by:					
A. Pneumonia subcutaneous	5	2	2	..	..
B. Gunshot wound of chest subcutaneous	5	1	1	..	..
C. Fractured lumbar vertebra subcutaneous	5	1	1	..	..
D. Postoperative					
sublingual	20-30	4	1	2	1
oral	20-30	4	3	1	..
subcutaneous	5	8	5	2	1
Total		20	13	5	2
2. Large ventral hernia subcutaneous	5	1	1	..	..
3. Megacolon	5-30	4	1	..	3
III. Effect on the bladder					
1. Postoperative urinary retention subcutaneous	5	18	15	..	3
2. Transverse myelitis					
subcutaneous	5	2	1	..	1
oral	25	1	1†	..	..
3. Paraplegia					
subcutaneous	5	2	2	..	..
oral	25	1	1†	..	..
Total		24	20	..	4
IV. Effect on the heart					
1. Paroxysmal auricular tachycardia subcutaneous	5	2	..	..	2
Total		80	55	11	14

* This case is also included under "oral."
† This case is also included under "subcutaneous."

Symptoms of dizziness, warmth and epigastric fulness without vomiting were present in 2 of these patients after the ingestion of small amounts of food. These symptoms were completely relieved by the single or repeated administration of 10 to 20 mg. of urecholine® by mouth. It appears that small oral or sublingual doses of urecholine® may be of benefit in the treatment of the so-called postgastrectomy syndrome, or dumping stomach.

Effect on the Intestine.—Urecholine® was used on 20 cases of adynamic ileus. In 13 instances the patients passed gas and often feces in from ten minutes to two hours after the drug was given. The patients with more severe disease were given an initial dose of 5.0 mg. of urecholine® subcutaneously, followed in three hours by another injection or by 25 to 30 mg. orally or sublingually. The drug was repeated four times a day when necessary. Mild postoperative abdominal distention was usually relieved by the oral administration of 20 to 30 mg. of urecholine.® The response was variable in 5 patients, and gradual improvement was noted over a period of two or three days. Urecholine® failed to relieve the abdominal distention in 2 cases, in both of which only a single dose of the drug was given.

The use of urecholine® in adynamic ileus is illustrated in 2 cases:

CASE 1 (R. T.).—The patient was a 60 year old Negro who entered the hospital with a two day history of cough, pain in the chest, chills and fever. Physical examination revealed an acutely ill man with a temperature of 103 F., pulse rate of 120 and a respiratory rate of 40. Dulness, decreased breath sounds and rales were present over the left side of the chest. The results of the remainder of the physical examination were essentially normal. A diagnosis of left lobar pneumonia was made and confirmed by roentgenogram. A dose of 30,000 units of crystalline penicillin was given every three hours. The following day the condition of the patient was unchanged except for the appearance of moderate distention of the abdomen. On the third hospital day, the abdominal distention became pronounced and the patient vomited. Gastric decompression was started, and intravenous fluids were given. A roentgenogram of the abdomen revealed gas-filled loops of both large and small intestine. On the fourth hospital day the temperature was 101 F., the pulse rate was 100 and the respiratory rate was 30. The abdomen was decidedly distended. The patient had passed no gas, and no relief was obtained with enemas or a rectal tube. On the fifth hospital day the condition was essentially unchanged. The patient had not passed flatus or stool in five days. An enema again failed to relieve the distention. The patient was then given 5.0 mg. of urecholine® subcutaneously. In ten minutes there was a copious passage of flatus, followed in one hour by a bowel movement. The Levine tube was removed, and within twelve hours the abdominal distention was gone and oral feedings started. The patient made an uneventful recovery.

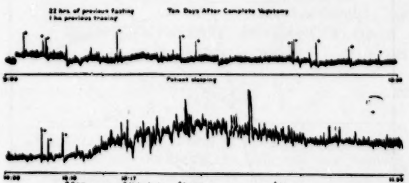

Fig. 1.—Effect of urecholine® on gastric motility.

CASE 2 (W. T.).—The patient was a 65 year old Negro who entered the hospital with a five day history of tenderness in the right inguinal region, cramping abdominal pain and vomiting. Physical examination revealed an acutely ill man with an extremely tender, incarcerated inguinal hernia. The patient was prepared for operation with Levine suction and fluids, including blood, given intravenously. At operation a gangrenous loop of small bowel was found in the hernial sac. This was resected and an end to end anastomosis performed. Postoperatively the patient was treated with penicillin, intra-

venous fluids and Levine suction. The patient was afebrile by the third postoperative day, but the abdomen remained decidedly distended. On the seventh postoperative day the patient still was decidedly distended. There had been no passage of gas or stool since five days before operation, or a total of twelve days. The abdomen was not tender, and occasional low pitched bowel sounds were present. It was apparent that the general condition of the patient was rapidly failing because of the severe adynamic ileus. Although urecholine® may be contraindicated after a recent intestinal anastomosis, the patient was given 5.0 mg. or urecholine® subcutaneously. Ten minutes later he passed a large amount of gas by rectum and shortly thereafter had a copious bowel movement. Within an hour the abdominal distention was almost completely relieved. The Levine tube was removed, and oral feedings were started. The patient subsequently made an uneventful recovery without further medication.

These 2 patients with adynamic ileus showed a prompt response to treatment with urecholine.® In the majority of cases the response was less dramatic and took place over a period of several hours.

A patient with a large ventral hernia was given 5.0 mg. of urecholine® subcutaneously in order that we might observe directly the effect of the drug on the motility of the small bowel. In ten minutes there was a decided increase in the bowel sounds and in both palpable and visible peristalsis. Three children and 1 adult suffering from megacolon received urecholine® orally for varying periods. In 1 case there was clinical improvement.

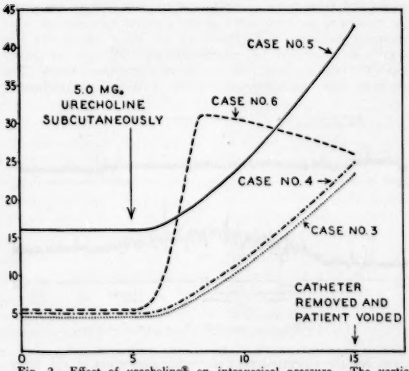

Fig. 2.—Effect of urecholine® on intravesical pressure. The vertical values at the left show bladder pressure in inches of water; the horizontal values show time in minutes.

Effect on the Bladder.—An injection of 5.0 mg. of urecholine® was given subcutaneously to 18 patients with postoperative urinary retention. Fifteen of these patients voided in three to ten minutes following the injection. Catheterization was performed if the patient did not void in fifteen minutes, as was the case in 3 of the patients.

Urecholine® was used for urinary retention in 2 patients with transverse myelitis. In 1 patient (case 3) the result was entirely satisfactory. The other patient was extremely ill, and no beneficial effect was noted.

Two patients with urinary retention due to spinal cord injury and resultant paraplegia were treated with urecholine.® The evacuation of the bladder in 1 patient (case 4) was completely controlled by urecholine.® The second patient (case 5) was relieved of urinary retention by the use of the drug.

The effect of urecholine® on the intravesical pressure was studied in 4 patients suffering from urinary retention (fig. 2). In all 4 patients there was a prompt increase in the intravesical pressure which reached a maximum in three to ten minutes. Ten minutes after the drug was given, the catheter, through which manometric readings were taken, was removed. In each case, the patient voided spontaneously within one minute. A brief summary of these 4 cases follows.

Case 3 (A. R.).—The patient was a 40 year old white woman who had entered the hospital fourteen weeks previously with paralysis of both legs. A diagnosis of transverse myelitis was made, and the patient gradually regained the use of her legs. She was unable to urinate, however, and a retention catheter had been used most of the time. On four occasions the retention catheter was removed, but the patient was unable to void and intermittent catherization was done. On three different occasions the patient was given 0.25 mg. of neostigmine every three hours for four doses, with no effect. After fourteen weeks of inability to urinate, urecholine® was tried. Three hundred cubic centimeters of sterile water was injected into the bladder, and the indwelling catheter was connected to a water manometer for the measurement of intravesical pressure. The basal pressure stabilized in less than five minutes at 4.5 inches (11 cm.) of water. Then 5.0 mg. of urecholine® was given subcutaneously. In two minutes the pressure began to rise, reaching a maximum of 23½ inches (60 cm.) of water in ten minutes. The catheter was then removed and the patient voided spontaneously. Five hours later she was given another 5.0 mg. injection of urecholine,® after which she urinated in five minutes. At this time she had 200 cc. of residual urine. The following day oral medication was started, 25 mg. of the drug three times a day. She urinated spontaneously, and the residual urine gradually decreased to 30 cc. at the end of two weeks, at which time urecholine® therapy was stopped. At the time of reporting she had had no further difficulty.

Case 4 (J. H.).—The patient was a 48 year old Negro who had been shot in the abdomen. On entering the hospital shortly after being shot, he had signs of peritonitis as well as flaccid paralysis of both legs. At emergency operation, two perforations of the stomach and three of the jejunum were repaired. The transverse colon, containing two additional perforations, was exteriorized. An indwelling catheter was placed in the bladder. The patient made an uneventful recovery from operation, but the paraplegia was unaffected. Two weeks after operation, when ample time had elapsed for complete healing of the sutured stomach and jejunum, manometric readings were taken of bladder pressure. Three hundred cubic centimeters of sterile water were instilled into the bladder. After the pressure was stabilized at 5 inches (13 cm.) of water, 5.0 mg. of urecholine® was given subcutaneously. The pressure rose steadily, reaching a peak of 25 inches (64 cm.) of water after ten minutes. The catheter was then removed, and the patient voided. The patient was then given 25 mg. of urecholine® orally three times a day, as well as three daily injections of 5.0 mg. He voided after each injection, and after two days there was only 30 cc. of residual urine. After one week, the treatment was stopped. The urine then began to overflow, with 1,000 to 1,400 cc. in the bladder. At the time of writing, he was receiving frequent injections of urecholine® again and voiding after each injection.

Case 5 (B. S.).—The patient was a 30 year old white man who had a broken back six years prior to examination, with resulting paraplegia. Three weeks prior to examination he had had a cordotomy for intractable pain in his legs. He had been unable to void, and an indwelling catheter was in place. One hundred and fifty cubic centimeters of potassium permanganate solution (1 to 5,000) was instilled into the bladder. After the basal pressure was stabilized at 17 inches (43 cm.) 5.0 mg. of urecholine® were given subcutaneously, following which the

intravesical pressure went up to 43 inches (109 cm.) at the end of ten minutes. The catheter was removed, and the patient voided. At the time of reporting, his bladder was overflowing with a small capacity and will probably require some form of tidal irrigation.

CASE 6 (D. H.).—The patient was a 36 year old white woman who had a cystocele and rectocele repaired with spinal anesthesia. An indwelling catheter was kept in the bladder for four days after operation. On removal of the catheter the patient could not void and required additional catheterizations for ten days. During this time the patient was given neostigmine (0.5 mg. every four hours for four doses) on three different occasions without effect. Urethral sounds were passed, and there was no stricture. On the fourteenth postoperative day manometric readings were taken. Three hundred and fifty cubic centimeters of sterile water was injected into the bladder, and the pressure was stabilized at 5.5 inches (14 cm.) of water. Three minutes after 5.0 mg. of urecholine® had been given subcutaneously, the intravesical pressure had risen to 31 inches (79 cm.). After ten minutes the pressure was 26 inches (66 cm.) of water. The catheter was then removed, and the patient voided 250 cc. Six hours later she was given another 5.0 mg. injection, five minutes following which she voided 350 cc. The following morning she voided 600 cc. spontaneously, with no residual urine, and remained asymptomatic.

Effect on the Heart.—A subcutaneous injection of 5.0 mg. of urecholine® had no effect in 2 cases of paroxysmal auricular tachycardia.

COMMENT

Urecholine® is a parasympathomimetic drug which acts on the stomach, intestine and bladder in the presence or absence of the preganglionic parasympathetic innervation. The effect is similar to that of doryl® (carbamylcholine chloride), although probably less toxic because of a weaker nicotine-like action.[7] Urecholine® appears to have little if any action on the heart. In several cases electrocardiograms were taken while the drug was being given, with no noticeable effect. There has been no effect noted on the blood pressure or the pulse rate.

Dosage and Method of Administration.—The dosage and method of administration of urecholine® must be selected in each case. Intravenous injection was not attempted. Intramuscular injection was given in 10 instances, and, since the results were similar to those obtained after subcutaneous injection, these cases have been included in the text and in the table under the heading "subcutaneous." A dose of 5.0 mg. of urecholine® given subcutaneously produces a rapid but transitory increase in the tone and motility of the stomach, intestine and urinary bladder. This amount has been given as often as every four hours for four doses. A dose of 10.0 mg. of the drug given orally usually causes gradual increase of gastric and intestinal motility. The oral administration of 30 mg. of urecholine® usually causes a decided increase in the motility of the stomach and intestine as well as an increase in the tone of the urinary bladder. This dose has been given as often as three times a day. Sublingual administration of 10 to 30 mg. of urecholine® may produce mild contractions of the stomach or intestine.

Toxic Symptoms.—The toxic symptoms or side effects have been few in number and in no case serious. A feeling of warmth, flushing and sweating occur in about one quarter of the cases after subcutaneous injection of the drug. Mild abdominal cramps may occur after the subcutaneous or oral use of the drug. There is occasional salivation. In no case was it necessary to give atropine to counteract the effect of urecholine.®

Contraindications.—The contraindications to the use of urecholine® are based on theoretical considerations. Urecholine® may cause a decided increase in gastric and intestinal peristalsis and should not be used after a gastrointestinal anastamosis until healing has taken place. The drug should not be used in the presence of peritonitis or mechanical intestinal obstruction. Urecholine® may cause contraction of the pregnant uterus, and, until this action has been studied, the drug should not be used during pregnancy. Urecholine® should not be given to an asthmatic patient, for it may precipitate an attack.

SUMMARY AND CONCLUSIONS

Urecholine® (urethane of beta methylcholine chloride) is a potent parasympathomimetic drug with relatively low toxicity and no serious side effect. It causes an increase in gastric motility in both the normally innervated and in the vagotomized stomach. It causes an increase in intestinal motility and is of definite value in the treatment of adynamic ileus. Urecholine® causes contraction of the normally innervated bladder as well as the cord bladder and is of considerable therapeutic value in the treatment of postoperative urinary retention. The value of urecholine in the treatment of cord bladder is yet to be determined.

ROENTGENTHERAPY IN CANCER OF THE HYPOPHARYNX

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Paris, France

The prognosis for cancer of the hypopharynx is poor because tumors occurring in this site are usually of an ulcerating and destructive nature. Complications, such as infection, involvement of the cartilage and sometimes considerable extension to the surrounding structures, make these lesions difficult to cure.

ANATOMIC CLASSIFICATION

The upper or membranous portion of the hypopharynx includes the whole aryepiglottic fold and the thyrohyoid membrane. The upper limit is the pharyngoepiglottic fold and the lower limit, approximately, the mucous fold of the superior laryngeal nerve. Radiographically, this part is projected between the hyoid bone and the superior border of the thyroid cartilage.

The lower or osteocartilagenous portion of the hypopharynx is deep, narrow and hidden. It is limited laterally by the thyroid lamina and medially by the arytenoid and the cricoid cartilages covered by muscles and fascia.

The distinction between the two parts is of particular significance when one considers the prognosis. Among patients at the Curie Foundation, those surviving five years, for the most part, are patients in whom the cancers originated and developed in the upper part of the hypopharynx. With two exceptions, lesions originating in the lower part have not been cured.

These results may be explained partly by the fact that carcinomas of the upper part are often fungating and bulky while those of the lower part are more often

From the Curie Foundation, Paris.
Read before the Section on Radiology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

ulcerating and destructive. The latter rapidly infiltrate the walls, the arytenoid and cricoid cartilages, their muscles and the thyroid lamina. Involvement of these structures creates biologic conditions less favorable than those produced by lesions of the aryepiglottic fold, away from the cartilages and articulations.

Therefore, cancers of the two areas may be described as: (1) cancers of the upper part, including epitheliomas of the aryepiglottic fold and the anterosuperior part of the pharyngolaryngeal fold, which can be cured when they are proliferative, and (2) cancers of the lower part, including those deep in the pyriform sinus, lesions involving the posteropharyngeal area of the arytenoid and the cricoid, and the mouth of the esophagus, or the posterior wall of the hypopharynx. They are much more difficult to cure and practically incurable when they are ulcerating (fig. 1).

In early cases the diagnosis is easy but in advanced cases, laryngoscopic examination is the only way to determine the origin of the disease. This examination should be made during and at the end of treatment,

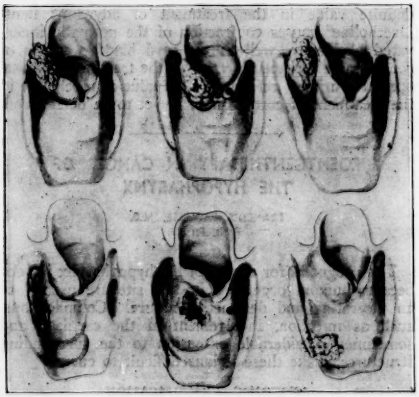

Fig. 1.—Prognostically favorable (upper row) and unfavorable (lower row) types of hypopharyngeal cancer.

after partial or total regression of the tumor. The observations should be supplemented by radiographic examination.

Anteroposterior and lateral view roentgenograms of the neck to show the pharynx may reveal three radiographic signs which point to the diagnosis of tumor of the upper part of the hypopharynx: 1. The space between the hyoid bone and the superior border of the thyroid cartilage, ordinarily clear, shows a shadow of increased density due to tumor. 2. The superior thyroid horns are not pushed forward; they remain in contact with the cervical part of the spine. 3. The flexibility of the pharyngeal wall is preserved. In the Valsalva test, the thyroid and cricoid cartilages are pushed forward and the lumen of the hypopharynx above the level of the superior half of the cricoid becomes dilated.

The radiographic signs of cancer arising in the lower part of the hypopharynx are: 1. The posterior pharyngolaryngeal shadow is thickened in its superior arytenoid segment or in the inferior cricoid part, or in both. 2. The superior thyroid horns, and occasionally the cricoid, are pushed forward. 3. Flexibility of the pharyngeal wall is observed to be decreased in the Valsalva test. However, some normal patients are unable to distend their hypopharynx with air.

The degree of flexibility is better demonstrated if the radiograph is taken immediately after oral administration of barium sulfate. The details of the lower part of the pharyngeal "funnel" are outlined by the opaque medium.

INCIDENCE OF CANCER OF UPPER AND LOWER PARTS OF THE HYPOPHARYNX

Clinical and radiographic studies of 240 patients treated during a ten year period yielded the following results:

Cancers of the upper part	70
Cancers of the lower part (of which 11 arose in the cricoid region)	100
Cancers of the posterior part of the hypopharynx	52
Not classified because too extensive, treatment not completed, etc.	18
Total	240

These figures indicate a greater incidence of lesions of the lower part of the hypopharynx (100+52=152).

FIVE YEAR SURVIVALS AND FOLLOW-UP

From 1921 to 1942, 425 patients were treated for cancer of the hypopharynx. Until 1937, most of the patients were treated by Dr. Coutard, or under his supervision. Of the 425 patients, 27 (6 per cent) were living and apparently healed after five years. Follow-up concerns only those patients who survived five years or more.

Of the 27 patients apparently cured five years after treatment, continued observation over a period of six to nineteen years showed:

3 patients lost to follow-up
6 patients died of intercurrent disease
1 patient died of late local recurrence
2 patients died of late distant metastasis (1 case of abdominal lymph nodes, 1 lungs and kidney metastases)
7 died from a second cancer

By second cancer is meant a carcinoma originating in another organ or, if in the initial area, clearly separated from the site of the first lesion. It is thus distinguished from the recurrence in situ. The 7 cases of second primary tumors include 2 cancers of the thoracic esophagus and 5 recurrences arising within the irradiated area but decidedly away from the first cancer. These sites are sufficiently interesting to warrant further discussion. They appeared between the sixth and tenth year, most of them occurring about the seventh year. It is interesting to note that 4 of the patients were among the group treated by Coutard in 1932 and 1933. The best results were obtained during those two years; of 8 patients treated, 4 were alive and apparently cured after five years. They later died from a second cancer. It may be pure coincidence; nevertheless, this percentage, even for a very low number, merits some consideration.

The doses given these patients were high (total skin dose distributed over two fields was 7,000 r, 7,500 r, 8,800 r and 9,100 r). On the other hand, these doses were given over a relatively short period, sixteen, twenty-eight, thirty-four and forty-five days. Moreover, treatment was delivered through large fields of 100 sq. cm. or more. All these patients except the one treated over the forty-five day period had severe reactions, i. e., cutaneous changes and muscular and deep tissue sclerosis. One patient required tracheotomy two months after the treatment, and it was necessary for him to retain his cannula permanently.

In contrast, the 7 surviving patients treated from 1937 to 1942 had no postradiation complications and,

so far, have shown no second cancer in the irradiated area. These patients received doses sometimes higher, but over a longer period (from sixty to seventy-four days) and through much smaller fields (10 to 50 sq. cm.). The two latter factors seem significant.

These observations are too few to draw any definite conclusions. However, it seems better to obtain local

TABLE 1.—*Incidence of Lymph Node Involvement and Site of Origin of Cancer, 1936-1945 (10 Years)*

Site, Hypopharynx	Cases	Lymph Node Involvement	No Lymph Node Involvement
Superior part.....	95	78	17
Inferior part.....	110	93	17
Posterior wall.....	34	21	13
Total.....	239	192	47

healing without damaging the surrounding tissues; for this reason the old method was discarded long ago. My co-workers and I now attempt to reduce cutaneous reactions by prolonging treatment time and by reducing the size of the fields while increasing the total dose.

LYMPH NODE METASTASES

The lymph node metastases deserve special consideration because of their frequent occurrence and the difficulty in curing them.

Table 1 shows the incidence of lymph nodes arising in the three areas, upper, lower and posterior part of the hypopharynx of 239 patients treated from 1936 to 1942.

It may be noted that the incidence of lymph node metastases is nearly the same for tumors of the upper and lower part of the hypopharynx but that they occur

TABLE 2.—*Roentgentherapy and Course of 7 Apparently Cured Patients, 1937-1942*

Case No.	Age, Yr.	Site of Tumor, Hypopharynx	Lymph Node Size	Approximate Tumor Dose, R	Treatment Period, Days	No. of Years Living and Well	Died of Intercurrent Disease
1	80	Upper part	1.5 cm.	6,500	57	..	After 9 yr.
2	69	Upper part	3.5 by 3 cm.	(1)6,000	Treated 31 Interruption 51 Treated 17	..	
				(2)5,500	Recurrence 49	8	
3	63	Upper part	.....	5,200	73	9	
4	61	Upper part	3 by 2 cm.	6,900	74	8	
5	64	Upper part	.....	6,800	57	7	
6	57	Upper part	.....	7,400	69	7	
7	74	Lower part	6.5 by 5.5 cm.	6,200	64	6	

less frequently when the primary carcinoma arises on the posterior wall. Because the incidence of lymph node involvement for the upper and lower parts is the same, it seems that failure to cure lesions of the lower part is due not so much to metastasis as to the creation of the biologic conditions mentioned earlier. During the past few years, several pertinent observations have been made, though they are too recent to be included in our statistics. On the one hand we noted the frequent disappearance of the lymph nodes at the end of treatment, or sometimes later. On the other hand, the primary tumor was not sterilized by the treatment. These two facts seem contradictory and warrant further study.

Of 186 cases of clinically metastatic lymph nodes treated from 1937 to 1945, 50 showed clinical disappearance of the lymph nodes for six months to one year or more. The patients died later of local recurrence. These unilateral or bilateral lymph nodes were classified as to whether they were smaller or larger than 3 cm. in diameter. Clinical disappearance of nodes when the cancer was localized was noted as follows: Of nodes smaller than 3 cm. in diameter, 1 disappeared of 7 treated; of 19 with a diameter larger than 3 cm., 6 disappeared; of 2 patients with bilateral involvement, 1 got well. When the cancer was extensive the corresponding proportions were 10 in 41; 22 in 87, and 10 in 30.

The percentage of clinical disappearance of the lymph nodes has increased during 1946 and 1947, and this is true for the oropharynx and nasopharynx as well as for the hypopharynx. In other words, in a great num-

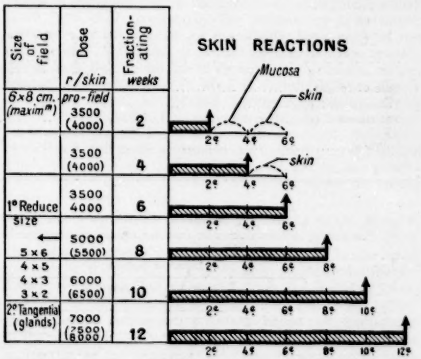

Fig. 2.—Evolution of cutaneous reactions as modified by prolongation of the treatment period and reduction in size of the field.

ber of recent cases, lymph nodes, even rather large ones, seem more amenable to treatment, at least temporarily, than the primary tumor. Explanation may be found, at least in part, in some technical consideration.

TECHNIC

During the last ten years, technic in the radiotherapy department of the Curie Foundation has been directed in the following manner. Attempts are made to avoid exudative reactions. Mucous membrane reaction, when it is produced, should be mild, so that treatment may be continued. If more or less intense reaction is produced in spite of measures to prevent it, treatment is stopped temporarily to that area for the duration of this reaction. In the meantime, irradiation is continued to the lymph nodes through tangential fields which avoid the pharynx.

The total skin dose per field is increased considerably over the generally accepted limits. This increase is possible only when two conditions are observed: First, the size of the field must be reduced after a certain dose and the lymph nodes irradiated tangentially. Second, the fractionation must be prolonged beyond the

period of four to six weeks which is now used by most radiotherapists. The study of this fractionation has led to the following observations:

1. To avoid moist epithelitis, it is important to know the exact time when reaction will appear, for in the course of a continuously and rhythmically conducted treatment there is a precise time (within two or three days) when it will be produced. The first period, as is well known, occurs at the end of the fourth week. It is the classic epidermitis, described by Regaud, which Coutard produced systematically at the beginning of his clinical research. This is followed by other characteristic reactions at regular biweekly intervals. The second period occurs at the end of the sixth week (thirty-nine to forty-two days), the fourth at the end of the tenth week and the fifth at the end of the twelfth week. These periodic reactions become apparent only if irradiation is given daily or every other day, with reduced doses and rotating fields.

2. By avoidance of exudative epithelitis, treatment may continue without interruption until the next critical period, and so on during eight, ten and twelve weeks.

3. To avoid the exudative epithelitis at the known and expected times, it is important not to exceed a certain dose for each term of the fourth, sixth, eighth and tenth weeks. At the end of treatment, which may last from six to twelve weeks according to the individual case, the moist epithelitis may appear without inconvenience because the planned dose has been delivered. The higher this dose may be, the longer the period of fractionation.

4. It is possible to give twice as much dosage per field with minimal damage to the tissues by adhering to the rules, namely, small fields, reduction in size of field even toward the end of treatment, alternating fields, tangential fields for the lymph nodes. Thus the total skin dose reached at the end of twelve weeks coincides with the limit of tolerance of the tissues, about 7,000 or 8,000 r.

Coutard stated the belief that he had established a relation between the periodic mucosal reactions he observed and the curability of cancer. In my opinion, the critical periods of cutaneous reaction are important because they point a way to increase the total dose. By keeping the dose below a certain amount for each period, it is possible to continue treatment and the total dose may be considerably increased.

There are two main therapeutic problems: (1) the effect of irradiation on the cancer cells which sometimes demand considerable dosage and (2) the protection of the surrounding tissue which is achieved through fractionation. Fractionation is probably less important in sterilization of the cancer cells, but its role in protecting normal tissues is much more important than is sometimes admitted.

According to this theory, there is no rigid routine in treating cancers in general, and this includes lesions of the pharynx. Selection of the most effective total dose with fractionation may be made from figure 2, and the choice is influenced by the clinical observations, i. e., site and extent of the lesion, presence or absence of lymph nodes and fast or slow regression of the lesion during treatment.

The application of this method of irradiation requires strict technic. It is made easier by the use of the light-directed and diaphragm-controlled beam. The diaphragm of the localizer consists of movable plates which permit great adaptability of the fields of the configuration of the area to be treated. Special localizer tubes can be adapted to the diaphragm which are

TABLE 3.—*Carcinoma of the Oropharynx, Five Year Results, 1920-1942*

	Localized Lesions								Extensive Lesions								Total	
	No Lymph Nodes		Unilateral Lymph Nodes		Bilateral Lymph Nodes		Total		No Lymph Nodes		Unilateral Lymph Nodes		Bilateral Lymph Nodes		Total			
	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed
Base of tongue	15	1	30	3	11	1	56	5	15	0	48	3	34	0	97	3	153	8
Vallecula and epiglottis	16	8	14	5	13	0	43	13	16	1	39	3	36	0	91	4	134	17
Not classified (too advanced)	..	..	..	..	..	..	..	..	7	0	11	0	13	0	31	0	31	0
Total	31	9	44	8	24	1	99	18 (18%)	38	1	98	6	83	0	219	7 (3.2%)	318	25 (7.8%)

TABLE 4.—*Carcinoma of the Nasopharynx, Five Year Results, 1920-1943*

	Localized Lesions										Extensive Lesions										Total	
	No Lymph Nodes		Unilateral Lymph Nodes				Bilateral Lymph Nodes				Total		No Lymph Nodes		Unilateral Lymph Nodes				Bilateral Lymph Nodes				Total	
			<3 Cm.		>3 Cm.		<3 Cm.		>3 Cm.						<3 Cm.		>3 Cm.		<3 Cm.		>3 Cm.			
	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed
Epithelomas	6	1	3	1	5	1	3	1	6	0	23	4	7	1	1	0	5	1	1	0	10	2	24	4	47	8
Lymphoepitheliomas	9	2	1	0	6	1	1	0	15	0	32	3	2	1	0	0	4	1	1	0	9	0	16	2	48	5
Total	15	3	4	1	11	2	4	1	21	0	55	7	9	2	1	0	9	2	2	0	19	2	40	6	95	13

especially useful near the end of treatment when the size of the lymph nodes has been reduced. Centering over very small fields is done rapidly, accurately and easily. The localizer tube attached to the diaphragm has a movable glass surface which may be flat or oblique, according to the area to be irradiated. The small illuminated skin surface is well visualized through the glass, and the center of the skin field is easily recognized if marked with a skin pencil. I believe that the increased skin dose, made possible by this technic of small well centered fields, explains the disappearance of lymph nodes, even large ones, noted in the past few years.

On the other hand, sterilization of the primary tumor seems much more difficult. While failures are due partly to the anatomic and clinical conditions previously outlined, the difficulty in delivering sufficient irradiation to the remaining primary tumor through a very small field is also responsible. The radiotherapist must stress greater technical precision in centering over the site of origin of the cancer.

Table 2 shows the approximate tumor dose and the duration of treatment period for 7 patients treated from 1937 to 1942 and apparently healed five years or more. The site of origin in 6 of these was in the upper part and 1 in the lower part of the hypopharynx. Four patients had lymph nodes, one measuring 6.5 by 5.5 cm.

The tumor doses are high, varying from 5,200 to 7,400 r. Fractionation was from fifty-seven to seventy-four days except for 1 patient whose treatment was irregular because of war conditions. First, the tumor received approximately 6,000 r over a period of ninety-nine days in two series (treated thirty-one days, rest fifty-one days, treated seventeen days). After this there was a local recurrence which was again treated fourteen months later with a tumor dose of nearly 5,500 r over forty-nine days. The last course was given without interruption. The lymph nodes (3.5 by 3 cm.) and the hypopharyngeal lesion disappeared, and the patient was apparently well after eight years.

The postirradiation changes in all these patients have been minimal. The treatment was tolerated without incident, and this is remarkable because some of these patients were very old. Results here are different than the complications noted when the total dose was less and given through a larger field in a shorter period of time.

COMPARISON OF FIVE YEAR RESULTS IN OROPHARYNX AND NASOPHARYNX CARCINOMA

Tables 3 and 4 show the five year result in oropharynx and nasopharynx epitheliomas classified according to the extent of the lesions. Of 318 patients with carcinoma of the oropharynx, 25 were well after five years, and of 95 patients with epithelioma of the nasopharynx, 13 were living and well after five years. The prognosis seems slightly better for the vallecular and epiglottic lesions than for the other areas and, on the whole, the rate of cure for the nasopharyngeal carcinomas is a little better than for those of the oropharynx.

SUMMARY AND CONCLUSION

By studying each case clinically and radiographically to localize the site and origin of the cancer, by adhering to a dosage schedule pertaining to the time of appearance of biologic reaction and by further protracting the course of treatment, one may hope for a cure in more cases of carcinoma of the hypopharynx. The ulcerating and destructive tumors will remain a difficult problem for some time. Technical improvements alone will not suffice, and radiologists, collaborating with biologists, should search for methods of increasing the sensitivity of these tumors.

ABSTRACT OF DISCUSSION

DR. JUAN A. DEL REGATO, Columbia, Mo.: We are honored to welcome Dr. Baclesse as the representative of the Radium Institute of the University of Paris. The clinical endeavors of the French school are widely appreciated by the pragmatic radiotherapist of this country. Dr. Baclesse has distinguished himself for his radiographic study of the pharynx and larynx and also for his work in the treatment of advanced carcinoma of the cervix. He now brings the results of roentgen therapy on a remarkably large series of cases that includes all of Coutard's material. These results, however poor, have not been obtained easily. Dr. Baclesse has noted the relatively better prognosis of carcinomas arising near or around the free border of the epiglottis. It is pertinent to emphasize that the lesser curability of the others is not due to difference in radiosensitivity but to their early invasion of vascular structures and laryngeal cartilages and to the extensive necrotic defects that result from their irradiation. The presence of a metastatic adenopathy is not a factor of incurability, since many of the patients that are cured presented metastasis when treated. These facts should help us to come to an agreement on the concept of radiosensitivity, a word so variedly interpreted and so widely misused, as different from radiocurability. From *stagier* at the Foundation Curie in the 1920's Baclesse has risen to become one of Europe's most distinguished therapeutic radiologists and to be recognized as Coutard's most brilliant pupil; we are pleased to congratulate him for his fine presentation, but we must congratulate ourselves also for the opportunity of listening to him.

DR. MAURICE LENZ, New York: According to Dr. Baclesse, prognosis in cancer of the hypopharynx is not good. It is especially bad when the origin of the growth is in the lower portions of this cavity. By prolonging roentgen therapy for cancer of the hypopharynx to ten or twelve weeks, Baclesse was able to administer larger tumor doses than given heretofore, without a corresponding increase in the radiation damage of the normal tissues included in the irradiated area. Increased protraction of the treatment period holds even more promise in irradiation of large volumes of the body and in those regions in which the normal tissues are especially radiosensitive. It has been used by Baclesse and others in roentgen therapy of cancer of the cervix, breast and other sites. For instance, the Standardization Committee of the American Radium Society (*Am. J. Roentgenol.* **38**: 377, 1937) reported that proctitis complicating radiotherapy of cancer of the cervix in the experience of its members occurred chiefly when the time for the administration of intracavity radium treatment was forty hours or less and the roentgen therapy a correspondingly short period. My co-workers and I investigated this problem because of a number of intestinal complications caused by this technic at the Presbyterian Hospital, New York; these stopped occurring as soon as we increased the treatment period (*Am. J. Roentgenol.* **39**: 871 [June] 1938). In cancer of the breast (*Acta Radiol.* **28**: 583, 1947) we gave larger doses than were given previously by prolonging the treatment to three months. Regaud and Coutard were the first to stress the advantage of protraction, but neither carried it to the degree that Baclesse has. Baclesse has tried to avoid radio epithelitis and has now cured patients without producing the severe mucous membrane reaction. It is this lessening of damage to the normal structures without reducing the number of cures for which Baclesse deserves credit; I congratulate him.

DR. FRANCOIS BACLESSE, Paris, France: With this method, in ten weeks—and, even in the very extensive condition, in twelve weeks—the following facts are noted: First, in a certain number of cases, there was clinical disappearance of

the lymph nodes, even when enlarged. Second, the healing of the primary lesion is more difficult to obtain. For example, of 186 cases of lymph nodes treated from 1937 to 1945, a clinical disappearance of the lymph node was obtained for a duration of six months to one year and more in 50 of the patients, the patients dying later from a local recurrence. The percentage of the clinical disappearance of the lymph node has increased during 1946 and 1947, and this applies to the hypopharynx as well as to the oropharynx and the nasopharynx. In other words, presently, and in a great number of cases, it seems easier to make the lymph nodes—even rather large ones—disappear, at least temporarily, than the primary tumor. These facts can be explained, at least partly, by some technical and biologic considerations, such as a large dose, well centered, through small fields, at the end of the treatment and with fractionation over a long time—eight, ten and even twelve weeks.

THE CORNELL MEDICAL INDEX

An Adjunct to Medical Interview

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It has been the purpose of this investigation to develop a quick and reliable method of obtaining important facts about a patient's medical history without expenditure of the physician's time. The Cornell Medical Index, the method developed, is a form on which persons undergoing medical examination indicate their symptoms and other significant medical information before being interviewed. As will be shown, the Cornell Medical Index collects a large body of data similar to that recorded in comprehensive hospital medical histories, so that the physician has at hand, even before he interviews the patient, information on which to base tentative diagnostic and prognostic appraisals of the patient's total medical problem.

This communication describes the Cornell Medical Index and compares the data it collects with information recorded by examining physicians in the hospital histories of patients in the general medical department of a large teaching hospital.

DESCRIPTION OF THE CORNELL MEDICAL INDEX

The Cornell Medical Index (abbreviated C.M.I.) is a four page letter-sized sheet. Like the psychiatric forms of the Cornell Index,[1] the C.M.I. collects data by asking questions. The 195 questions on the C.M.I. were chosen to correspond closely to those usually asked in a detailed and comprehensive medical interview, including many on the psychologic aspects of the patient's disorder. Questions are in informal language and worded to be understood by persons with a reading knowledge of simple English. Technical terms are avoided, but when their use is necessary an explanation is given. Thus, diabetes is explained as "sugar disease," urinate as "passing water" and varicose veins as "swollen veins." After each question a "Yes" and a "No" appear; the patient answers the question by circling one. In every instance, a "Yes" response indicates that the patient does have the symptoms about which he is being questioned.

In constructing the C.M.I., items were selected only after a pilot study of more than 1,000 subjects had shown that the items collected data accurately. The questions are of four kinds: those relating to bodily symptoms (for example, "Do you usually feel bloated after eating?"), those relating to past illnesses ("Has a doctor ever said you had kidney or bladder disease?"), those relating to family history ("Did anyone in your family ever have a nervous breakdown?") and those relating to behavior ("Do you often feel unhappy and depressed?").

The questions on the C.M.I. are arranged in sections headed by letters of the alphabet, questions in each section being related. A list of these sections, together with the number of questions in each, is given in table 1.

There are two forms of the C.M.I., one for men and the other for women. Both are identical except for six questions in the genitourinary section.

The C.M.I. is headed: Cornell Medical Index, Health Questionnaire. The term "Cornell Medical Index" distinguishes this from the psychiatric forms of the Cornell Index (the military Form S and the civilian Form N2). "Health Questionnaire" explains the nature of the form to the patient and has been shown by test to reduce the patient's suspicion about the purpose of the questions.

The C.M.I. is administered simply by handing the form to the patient and asking him to complete it. It can be administered to patients either individually or in groups, the additional equipment necessary being a pencil or pen and a table or board on which to rest the form. The New York Hospital Out-Patient Department uses a pressed paper board, 10 by 12 inches, which the patient rests on his knees.

THE SAMPLE STUDIED AND METHODS

Between April and October 1948, all patients except illiterate persons who newly entered the New York Hospital Out-Patient Department completed a C.M.I. The sample reported here consists of 179 consecutive patients attending the adult general medical clinic, a teaching clinic for fourth year students at Cornell University Medical College. These patients were examined, and their histories recorded, by forty-nine physicians on the staff of the Medical Department of the New York Hospital.

Since the data on the C.M.I. and those recorded by attending physicians in the medical histories were collected independently, it is possible to make valid comparisons. Each item answered on the C.M.I. was compared with each item recorded in the medical history and tabulations made in four categories: (1) items that appeared in both the C.M.I. and the history,

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From The New York Hospital and the Departments of Medicine (Neurology) and Psychiatry, Cornell University Medical College, and Teachers College, Columbia University.

1. Weider, A.; Brodman, K.; Mittelmann, B.; Wechsler, D., and Wolff, H. G.: Cornell Service Index: A Method for Quickly Assaying Personality and Psychosomatic Disturbances in Men in the Armed Forces, War Med. **7**: 209-213 (April) 1945. Mittelmann, B.; Brodman, K.; Weider, A.; Wechsler, D., and Wolff, H. G.: The Cornell Indices and Cornell Word Form, Ann. New York Acad. Sc. **46**: 573-591, 1946. Weider, A.; Brodman, K.; Mittelmann, B.; Wechsler, D., and Wolff, H. G.: The Cornell Index: A Method for Quickly Assaying Personality and Psychosomatic Disturbances, to be Used as an Adjunct to Interview, Psychosom. Med. **8**: 411-413, 1946. Brodman, K.; Mittelmann, B., Wechsler, D.; Weider, A., and Wolff, H. G.: The Relation of Personality Disturbances to Duration of Convalescence from Acute Respiratory Infections, Psychosom. Med. **9**: 37-44, 1947. Brodman, K.; Mittelmann, B.; Wechsler, D.; Weider, A., and Wolff, H. G.: The Incidence of Personality Disturbances and Their Relation to Age, Rank and Duration of Hospitalization in Patients with Medical and Surgical Disorders in a Military Hospital, Psychosom. Med. **9**: 45-49, 1947.

(2) items that appeared in the history but not in the C.M.I., (3) items that appeared in the C.M.I. but not in the history and (4) items in the history that elaborated data appearing in the C.M.I.

RESULTS

An average of 16.9 items of similar data were recorded in the C.M.I. and in each history (table 2). In addition, an average of 6.4 items were recorded in each history that did not appear in the C.M.I. However, only 1.4 of these were items of critical data about the present illness, the other 5.0 being routine quantitative historical data concerning such matters as

TABLE 1.—*The Sections on the Cornell Medical Index*

Section	Questions Referring to:	Number of Questions
A	Eyes and ears	9
B	Respiratory system	18
C	Cardiovascular system	13
D	Digestive tract	23
E	Musculoskeletal system	8
F	Skin	7
G	Nervous system	18
H	Genitourinary system	11
I	Fatigability	7
J	Frequency of illness	9
K	Miscellaneous diseases	15
L	Habits	6
	Mood and Feeling Patterns	
M	Inadequacy	12
N	Depression	6
O	Anxiety	9
P	Sensitivity	6
Q	Anger	9
R	Tension	9
	Total	195

TABLE 2.—*Average Number of Items Noted in Each Cornell Medical Index and in Each Hospital History* *

	Average Number of Items			
	In Both C.M.I. and History	In History Only	In C.M.I. Only	In History Elaborating C.M.I.
Items answered affirmatively	7.9	4.4	27.7	14.1
Items answered negatively	9.0	2.0	148.4	1.2
Total items noted	16.9	6.4	176.1	15.3

* The sample consisted of 179 patients.

the details of diet, the number of pounds gain or loss of weight, the number of siblings, data on the menstrual cycle, obstetric history, personal history and family history. The C.M.I. thus collected most of the critical data recorded in the history. In only 1 instance, a case of tuberculous cervical adenitis, the history gave information of crucial importance that was not found on the C.M.I., but which appeared in the C.M.I. supplementary sheet (described later).

The history also contained an average of 15.3 items of elaboration of data appearing on the C.M.I., for example, when the C.M.I. indicated the presence of chest pains, the physician noted its location, nature, onset, duration or radiation. These elaborations are, of course, important diagnostic criteria.

The C.M.I., on the other hand, contained an average of 176.1 items of data not recorded in the history. Of these, an average of 27.7 were answered affirmatively and so must be presumed to be of diagnostic significance. The C.M.I. thus collected considerable information not included in the history.

Ninety-five per cent of the questions on the C.M.I. were answered identically in the C.M.I. and the history.

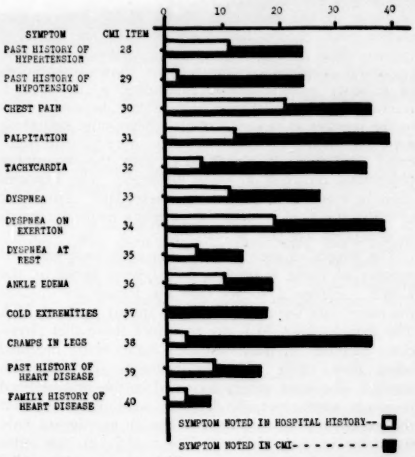

Fig. 1.—The percentage of patients with symptoms referable to the cardiovascular system (horizontal values), as indicated in the Cornell Medical Index and as noted in the hospital histories.

This corresponds closely to the agreement of two independent oral interviews with the same patient. Patients thus appear to answer printed questions in

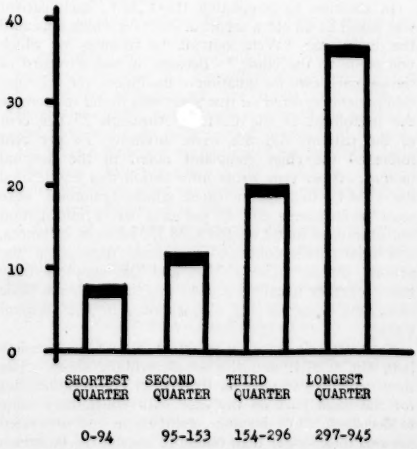

Fig. 2.—The average number of C. M. I. items (vertical values) included in long and in short hospital histories. The horizontal row of figures at the bottom shows the number of words in the histories.

the C.M.I. as honestly and accurately as they do similar questions in interview. This was further confirmed by questioning more than 200 patients, after they had completed the C.M.I., about each of their responses;

it was found that if they could read the questions they almost always understood what was being asked and then answered accurately.

The symptoms appearing in the C.M.I. but not in the history are of special interest. A study was made of these in one section of the C.M.I. The cardiac section was chosen for study because the items of cardiac data recorded in medical histories are comparatively standard. In figure 1 are shown the number of patients who indicated symptoms in the C.M.I. referable to the cardiovascular system in comparison to the number in whose histories these same symptoms were recorded. In every instance more patients indicated symptoms in the C.M.I. than the examining physicians recorded in their histories. The histories must be considered deficient in these data. The value of filing the C.M.I. with the patient's medical records in situations like this is obvious.

The length of each history was compared with the number of items it contained that were noted on the C.M.I. Figure 2 shows that the longer the history the more data were included that appear in the C.M.I. The data in the C.M.I. are therefore those that physicians included in their histories, more being included when they wrote a longer history. The histories studied, like most others recorded in the best ordered hospitals, were especially deficient in information about the patient's emotions, there being an average of only 0.4 items in each history. The C.M.I., on the other hand, collects 51 items, of which an average of 7.8 were answered affirmatively. It is to be emphasized that to evaluate properly the patient's psychologic status it is necessary to know definitely which symptoms are absent as well as which are present.

THE SUPPLEMENTARY SHEET

In addition to completing the C.M.I., each patient was asked to fill out a separate sheet on which appeared the directions: "Write out all the troubles for which you come to the clinic." Because it was a record of the patient's own formulation of his illness, the information patients entered on this sheet was found to increase the usefulness of the C.M.I. Although 25 per cent of the patients did not write anything, 70 per cent indicated the chief complaint noted in the hospital history, 50 per cent wrote information that highlighted the C.M.I., that is, indicated which symptoms were most troublesome, and 30 per cent wrote information not otherwise found on the C.M.I. In most instances, this information contained additional data about the present illness. The C.M.I. and the supplementary sheet together usually included practically all the basic data, and some of the elaborations, in the hospital history.

Patients took from ten to thirty minutes to complete both the C.M.I. and the supplementary sheet. The time depended in part on their level of education, but for the most part on the ease with which they came to decisions. For instance, compulsive and depressed persons took longer than others to answer the questions on the C.M.I. More than 70 per cent of the patients with at least an elementary school education finished the C.M.I. in less than fifteen minutes and almost 90 per cent in less than twenty minutes.

Only rarely did a patient show any disinclination to fill out the C.M.I. Almost all completed the C.M.I. as a matter of course, many, in fact, expressing satisfaction that the doctors were making as thorough an investigation of their medical problems as the varied and searching questions on the C.M.I. indicated. Although some patients found difficulty in formulating and writing out their complaints on the supplementary sheet, they found no trouble in answering the printed questions by circling a "Yes" or "No."

CASE HISTORIES

The value of the C.M.I. in calling attention to, and clarifying, aspects of the patient's disorder is illustrated in the following case histories. It is to be noted that during the course of this study the C.M.I. was not available to the examining physicians.

Patient's Symptoms Not Fully Described in the History.—T. O., a woman aged 43, sought medical advice for known hypertension and obesity. The medical history recorded by the examining physician did not mention the following symptoms of which the patient complained on the C.M.I.: chest pains, palpitation, tachycardia, dyspnea, ankle edema, cramps in the legs, headaches, dizziness, faintness and muscular twitching. Whether the physician did not elicit and record these symptoms because of lack of time, or preknowledge of the diagnosis, is not known. Nevertheless, it is obviously desirable to have them a part of the patient's permanent record. This could be done at no further expenditure of the physician's time by filing the C.M.I. with the hospital history.

An Important Item of Medical History Overlooked.—C. J., a woman aged 38, reported to the admitting clinic complaining of a "stroke" of three months' duration, with impairment of speech and right-sided weakness. In the general medical clinic, to which she was referred, she was examined extensively by a fourth year student and by an attending physician. Because she had hypertension in her lower extremities and hypotension in her upper, it was decided to admit her to the hospital for further study.

On the ward she was interviewed and examined by three physicians independently. Perhaps because her speech impairment made inquiry difficult, none of the five physicians who interviewed her obtained a history of syphilis, an item of crucial diagnostic importance. She had noted a history of syphilis on the C.M.I. on her first visit to the admitting clinic. Not until the result of her Mazzini test was reported positive did the staff elicit her history of syphilis. Had the C.M.I. been available to the examining physicians, to call attention to the past history of syphilis, the final diagnoses of syphilitic aortitis, central nervous system syphilis and cerebral vascular accident would have been facilitated.

An Important Emotional Disorder Overlooked.—O. K., a man, aged 70, sought medical help because of urinary complaints. A diagnosis of benign prostatic hypertrophy was made in the urology clinic, and the patient was admitted to the hospital for treatment eleven days later. During his forty hours in the hospital notes were left on his chart by two physicians and four nurses. The only note about his emotional status was made by a nurse who stated that the patient was "somewhat apprehensive about operation, complains that eyesight is failing since admission to hospital." The patient's hospital stay was abruptly terminated on the second day by his jumping out of the

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bathroom window and falling nine stories to the ground. He was instantly killed.

A subsequent review of the C.M.I. he had completed on his first visit to the hospital showed that he had indicated eighty-five symptoms in addition to his urinary difficulties. Many were indicative of an emotional disturbance. He complained of such symptoms as feeling unhappy and depressed, being keyed up and jittery, having frightening thoughts coming to his mind, life looking entirely hopeless, and often wishing he were dead and away from it all. Obviously, had the C.M.I. been available to the staff physicians, attention would have been directed to the urgent need for psychiatric appraisal and treatment, and it is not unlikely that prompt measures, including psychotherapy, might have prevented the suicide.

The Importance of the Patient's Total Medical Problem Overlooked.—G. R., a man aged 34, complained of loss of vision in the right eye. He was referred by the admitting physician to the ophthalmology department for immediate consultation. He was seen there the next day, where a diagnosis was made of right optic atrophy, due either to spasm of the central retinal artery or to other occlusive disease, such as syphilis. The day after he was seen in the general medical department, where additional diagnoses were made of inactive rheumatic heart disease and atopic dermatitis, with a history of paroxysmal tachycardia, a history of prostatitis and possible hysterical reaction. That afternoon he was seen in the dermatology department, where the diagnosis of atopic dermatitis was confirmed. His next visit was again to the dermatology department, ten days later, where a diagnosis of neurodermatitis was made. The following day he was seen in the ophthalmology department; no further diagnoses were made, but the use of amyl nitrite was recommended. Eight days later the patient again visited the ophthalmology department, where one physician noted on the history, "Patient wants psychosomatic care, or at least evaluation, and I think it a worth while idea; in view of precipitation of all attacks when under tension and a probable organic etiology, I do not know how much good it will do." Six days later the patient was seen in the neurology department, where diagnoses were made of right optic atrophy, due to vasospastic phenomenon, and severe emotional problems. The next day, twenty-eight days after his initial visit to the admitting clinic, the patient was seen for the first time in the psychosomatic department. There, on investigation, the close relation of his ocular disorder to other bodily symptoms and to his emotional disturbance was recognized.

This relation, typically found in such ocular disorders, was indicated by the patient himself on his first visit to the hospital. In the admitting clinic, he had indicated on the C.M.I. eighty-seven symptoms in addition to the three about his eyes, many suggestive of vasomotor disturbances in other parts of his body and many outlining a severe emotional disorder. In addition, he wrote on the C.M.I. supplementary sheet, "I am afraid, or rather I don't seem to care about anything any more. I can't breathe, I feel hungry but I don't want to eat. I make dates and promises (in all sincerity) but hate to keep them—and at the same time I want to. I feel that I am about to become totally blind (I have been on several occasions). I want a girl, but I'm afraid to take the steps to get one. I have lost all interest in my talents, which are art, music (my hearing dims from time to time), science—as I write about them I feel enthusiasm, but if I follow my impulses, which is to leave and try again, I know that I won't follow through. I have no skills and no real job—I work for a commission and live under the constant harassing of my mother, who is slowly driving me mad. She criticizes me on my habits and is responsible for my being here, as she has preached psychology to me for years."

Obviously, if the C.M.I. and the supplementary sheet had been reviewed by the physicians who examined the patient, it would have been impossible to overlook the strong suggestion that the ocular symptoms were not an isolated medical phenomenon, but only one manifestation of a generalized systemic and emotional disorder. The patient might then have been referred immediately for comprehensive evaluation and treatment of his total problem, instead of this being postponed for a month while only a single aspect of his disorder was being considered.

COMMENT

In investigation of the medical value of the data it collects, the C.M.I. was compared with recorded medical histories; this comparison was made with the knowledge that such histories are open to criticism, because the items included have been chosen empirically. However, no better criterion for the diagnostic value of general medical data exists than those chosen for recording in medical histories of a university teaching hospital. As shown previously, the data collected by the C.M.I. include those recorded in these general medical histories in addition to many others of diagnostic importance.

Until a statistical method of scoring is formulated, the C.M.I., like medical data on a hospital history, is interpreted by clinical evaluation. Interpretation is facilitated because the affirmative responses, indicating the presence of symptoms, are conspicuous. The physician can quickly note which symptoms the patient has and how many, in each section of the C.M.I., and so can form a tentative evaluation of the patient's medical problems. Interpretation of the C.M.I. is, of course, more searching after the patient's affirmative responses have been elaborated in interview.

Most of the data on hospital histories and on psychiatric forms of the Cornell Index are to be found on the C.M.I., and valid somatic and personality appraisals are often possible with the use of the C.M.I. alone. However, the C.M.I. is intended only as an adjunct to, and not a substitute for, oral interview.

The C.M.I. has been found useful in medical clinics, in specialty clinics, in teaching, in industry and in the private practice of general and internal medicine. The time-saving features of the C.M.I. recommend it for use in military induction stations, in military hospitals and in Veterans Administration clinics and hospitals.

The C.M.I. has the following facts to recommend it:

1. The physician is not burdened with the task of asking the 195 questions on the C.M.I. and recording the answers, in addition to elaborating the present illness and items of past history. The questions patients have already answered in the negative on the C.M.I. need not be repeated in interview.

2. It orients the physician, even before he sees the patient, with a rapid survey of the patient's total medical problem and suggests immediately what matters need investigation. After acquaintance with the C.M.I. it is possible to review it in as little as one minute.

3. Since the questions are identical for each patient, comparisons of the responses among individual patients are valid, a value important for research.

4. In teaching, the standardization of the data and their systematic arrangement facilitate study and comparisons among patients.

The most effective technic for use of the C.M.I. as an adjunct to interview has been found to be for the patient to complete the C.M.I. before he sees the physician and for the physician to review the C.M.I. before he interviews the patient. The physician thereby gains a background of knowledge about the patient to orient him in interview.

When first using the C.M.I. some physicians conduct medical interviews according to their established routine. However, inquiry need consist only of eliciting the details of the present illness and asking the patient to tell more about the symptoms he indicated on the C.M.I. and supplementary sheet. In telling more, patients usually reveal important relations of their symptoms to other complaints and to life situations. This technic of history taking is not unformulated and time consuming, as may first appear. Discussion with the patient of his responses to the questions about his psychologic status usually leads directly to a discussion of his emotional problems and life situation and to the establishment of a good physician-patient relationship.

SUMMARY

The Cornell Medical Index, a self-administered form, was constructed to obtain important facts about a patient's medical history for comprehensive diagnostic and prognostic appraisals, at no expense of the physician's time. Most of the data physicians recorded in the histories of patients in the Medical Department of the New York Hospital, and, in addition, a large body of supplementary data, were collected by the Cornell Medical Index. These data were collected as accurately as in oral interview. The Cornell Medical Index has been found to be of use in hospitals, in teaching, in industry, in private practice and in research and would appear to offer aid to physicians in military induction stations and Veterans Administration hospitals.

In these situations the Cornell Medical Index has been found to be useful because: It collects for appraisal a large and comprehensive body of information about the patient's medical history at no expenditure of the physician's time; it facilitates interview by making available to the physician a preliminary survey of the patient's total medical problems; its data, being systematically arranged, are easier to review than those on conventional medical histories, and, by calling attention to the patient's symptoms and significant items of past history, it assures that their investigation will not be overlooked because the physician lacked time to elicit them.

Ireland has cut its population in half during the last hundred years (partly by means suggested by Malthus) and has improved its level of living from one of the lowest to one of the highest in Europe.—Guy Irving Burch, *Population Bulletin*, April 1949.

Council on Pharmacy and Chemistry

REPORT TO THE COUNCIL

The Council has authorized publication of the following statement from the Therapeutic Trials Committee, a standing committee of the Council on Pharmacy and Chemistry.

AUSTIN SMITH, M. D., *Secretary.*

METHODS OF CLINICAL STUDY AND EVALUATION OF THERAPEUTIC AGENTS IN POLIOMYELITIS

Early in 1947, the Therapeutic Trials Committee was asked by the National Foundation for Infantile Paralysis to investigate the feasibility of and methods available for evaluating the effect of moist heat in the treatment of poliomyelitis. A subcommittee was formed which, together with a number of consultants, studied this problem for nearly two years. Although a report was rendered to the National Foundation outlining in detail the methods which, in the opinion of the subcommittee and its consultants, should be used in evaluating the effect of this modality in poliomyelitis, certain principles applicable to the evaluation of any agent in this disease became evident from these studies. It was thought desirable to present these principles in the form of a report in the hope that they will prove useful to any who may be charged with the task of testing the effectiveness of some new agent in this disease.

WALTON VAN WINKLE JR., M.D., *Secretary.*

Before selecting methods for the evaluation of any agent in the treatment of a disease, the ultimate effect that is desired must be clearly in mind. In the case of poliomyelitis, four possible results of therapy may be produced by an effective agent: (1) alleviation of symptoms during the acute phase, such as pain, muscle "stiffness" or "spasm"; (2) prevention of paralysis; (3) prevention of death, and (4) more complete restoration of full muscular function. In this report, attention will be focused on the first two and the last of these effects, since death from poliomyelitis results from specific localization of the disease, either bulbar or affecting the innervation of the respiratory muscles.

The basic problem in evaluating any therapeutic agent in a disease such as poliomyelitis is to overcome or diminish the errors introduced by the wide variations in the spontaneous course of the disease and the inability to predict the probable outcome of a given case when seen early in the disease at the time therapeutic measures are instituted. In order to understand the reasons for the recommendations contained in this report, it is necessary to appreciate these variables, and, therefore, a brief discussion of the more important ones is presented.

VARIABLES TO BE CONSIDERED

The Diagnosis of Poliomyelitis.—The diagnosis of poliomyelitis must be based primarily on symptoms and clinical findings. The earlier in the disease a case is seen, the less characteristic these are. In addition, certain laboratory observations are of value, but none which is available to the clinician is absolutely diagnostic. The committee believes that for the purpose of evaluating a proposed therapeutic agent, the following diagnostic criteria should be met:

1. The history of onset and course must be compatible with poliomyelitis; i.e., acute onset of a febrile illness, sometimes resembling influenza, with headache, fever and a recognizable stiff neck as determined at least by some disinclination to forward flexion of the head. Vomiting may, or may not, be present.

The Subcommittee on Poliomyelitis consisted of Dr. William T. Green, Boston, Chairman; Dr. Hugo Muench, Boston; Dr. Derek Denny-Brown, Boston, and Dr. James L. Wilson, Ann Arbor, Mich. Consultants to the subcommittee included Dr. Montgomery Blair, Washington, D. C.; Dr. R. V. Platou, New Orleans; Dr. Edward Shaw, San Francisco; Dr. Frank Stevenson, Cincinnati; Dr. Lee E. Sutton, Richmond, Va.; Dr. John A. Toomey, Cleveland; Dr. Joseph S. Wall, Washington, D. C., and Dr. Myron Wegman, New Orleans.

2. The fever should rarely exceed 104 F. and should not persist longer than six days, unless obvious secondary complications are noted or bulbar palsies develop.

3. If no paralysis is present at the time of admission, there must be a fever and an abnormal spinal fluid with a range of cell count between 10 and 500. The protein content is elevated and the sugar content normal.

4. Cases of paralytic disease seen during the febrile period should show a localized paralysis that is definitely demonstrable and not a diffuse generalized weakness.

5. For a proper evaluation of therapeutic measures, cases first seen after the twenty-eighth day of the disease should not be admitted to the study.

It is appreciated that the foregoing criteria will result in the exclusion of some cases of poliomyelitis, but they will also prevent the inclusion of many cases of other diseases which, in the initial stages, may be mistaken for atypical poliomyelitis, particularly during an epidemic. These criteria are recommended, therefore, as a means of decreasing the influence of one variable in the study.

The Course of the Disease.—Poliomyelitis shows extreme variability in its course; on one hand, a patient may show extensive muscular involvement during the acute stage but have no residual paralysis or weakness at the end of eighteen months; on the other hand, a patient with only minor involvement at the onset of the disease may become a hopeless cripple. In some patients paralysis never develops, and others show remarkable spontaneous recovery from seemingly severe paralysis. It must be emphasized that at present it is not possible to predict the eventual outcome of a case of poliomyelitis by any tests or examinations made during the acute or early convalescent phases of the disease.

Since it is known that a large number of patients showing severe involvement during the early stages of the disease recover spontaneously, any method of evaluation of a therapeutic agent must be so designed as to take into account this spontaneous improvement and not credit the agent with this result.

The tendency to spontaneous improvement not only affects the evaluation of the final results of therapy but also affects the evaluation of the agent from the standpoint of relieving symptoms and shortening the course of the disease. For instance, it is difficult, in the acute phase, to distinguish between the pseudoparalysis of pain and the actual paralysis due to nerve cell involvement. It is impossible to determine whether the functionless anterior horn cell, as manifested by a paralyzed muscle, is a destroyed cell or is one which will recover.

Variations in the Virus.—It is now known that there are at least three immunologic types of poliomyelitis virus.[1] Whether or not these different, although related, viruses are responsible for the differences in clinical course of patients with poliomyelitis in one epidemic as compared with those in another is not known, nor is it known whether different viruses will respond differently to therapeutic agents. Thus, any evaluation of such agents should be made in a manner that will be most likely to include patients with various types of viruses utilizing different seasons and geographical source.

Variations in Geography.—It has long been noted that poliomyelitis is most prevalent in the late summer months but in certain localities tends to occur throughout the year. Certain other characteristics associated with geographical distribution have been suggested, and, therefore, this factor must be considered in the evaluation of any therapeutic agent.

Age Distribution.—Poliomyelitis formerly was primarily confined to the youngest age groups. In recent years a higher proportion of older persons have been affected. Reliable data are not available which would indicate whether the course or outcome of the disease differs in the various age groups. It is essential, therefore, to consider the age factor in designing a study of the treatment of the disease.

Differences in Time.—It has been noted that various epidemics observed in different years vary not only in the geographic distribution of cases, but also with respect to the severity of the disease and the incidence of such forms of poliomyelitis as the bulbar type. Whether this is due to differences in types of the virus or to other factors is not known. It is important, therefore, to observe both control cases and cases in which the agent is tested at the same time in order to eliminate this difference. An excellent discussion of the importance of the general factor of time and other factors which may influence an investigation has been given by Albritton[2]; those planning to undertake clinical investigations should refer to these discussions.

Methods of Appraising the Condition of the Patient.—Poliomyelitis does not lend itself readily to quantitative study. Reliance must be placed on the subjective response of the patient in the evaluation of pain and tenderness, on semiquantitative muscle examinations in the evaluation of progress and extent of specific muscle involvement and on deformity and function for the over-all end result of treatment. In all of these, the judgment and experience of the person making the examinations provide an imponderable variable in any evaluation of a therapeutic procedure.

PROPOSED DESIGN OF INVESTIGATION

It is obvious from the brief discussion just presented that any study designed to evaluate a therapeutic agent in a disease the nature of which is as variable as poliomyelitis must be rigidly controlled if it is to have any value. Because of these variables, it is also apparent that a large number of cases will have to be studied simultaneously at various clinics, well distributed geographically. Because of differences in diagnostic criteria, age distribution of patients admitted, economic level from which patients come and methods of examining muscles and evaluating function among different clinics, any study involving more than one institution will have to be conducted in a collaborative manner. It would seem wise, therefore, to outline briefly the opinion of the committee with regard to the conduct of a collaborative investigation.

Collaboration of Several Clinics in Evaluating a Therapeutic Agent.—In general, there are three principal ways in which a collaborative investigation may be organized. An individual or small group may devise the details of the project, secure the cooperation of a number of investigators and direct the project from a central headquarters. The investigators have no voice in planning, operation or evaluation of the investigation but serve merely as agents of the central group. A second method involves the collaboration of various groups, each carrying out an investigation of its own choosing but exchanging and pooling information. No central planning group is involved and each clinic maintains its autonomy. The third method, a compromise of the first two, involves joint planning by all collaborators with a central group to execute the decisions and maintain uniformity of procedures. The central group makes no policy but merely carries out the decisions agreed on by the collaborators.

It is the last method that, in general, is most practical and at the same time reasonably efficient and is the one probably best suited for thorough evaluation of therapeutic agents in poliomyelitis. Each investigator must be convinced of the soundness of the project and understand fully the reasons for any restrictions of the investigation or procedures to be followed. This is secured by joint planning. On the other hand, some of the procedures which must be employed require central direction, as will be evident later, and this can be secured by the establishment of a central executive group.

It is important that, before embarking on any collaborative investigation, all details of methods and procedures be agreed on by all participants. Once agreed on, it becomes the duty of the central executive group to insure that these methods and procedures are followed. Finally, the central group should be responsible for the collection of records for analysis and providing a rapid interchange of information. A scheme similar to this has been used in developing the methods which will be outlined.

Selection of Participating Clinics.—The prime requisites for participation in any collaborative investigation of the value of a therapeutic agent in poliomyelitis are the following: (1) quali-

1. Kessel, J. F., and Pait, C. F.: Differentiation of Three Groups of Poliomyelitis Virus, Proc. Soc. Exper. Biol. & Med. **70**: 315 (Feb.) 1949. Bodian, D. W.: Poliomyelitis: Another Strain of the Lansing Type, ibid. **70**: 1 (Jan.) 1949. Roberts, E. C.: A Flocculation Test as a Possible Method for Differentiating Immunologic Types of the Poliomyelitis Virus, Pub. Health Rep. **64**: 212 (Feb. 18) 1949.

2. Albritton, E. C.: Experimental Design and Judgment of Evidence, Ann Arbor, Mich., Edwards Bros. Inc., 1948.

fied physicians, experienced in the diagnosis and treatment of the disease in all its manifestations; (2) qualified medical ancillary personnel experienced in the care of patients with poliomyelitis; (3) facilities and technical staff adequate to carry out procedures in excess of those usually used in the routine treatment of patients with poliomyelitis, and (4) a probable case load sufficient to provide adequate clinical material for study.

Number of Participating Clinics.—The number of clinics participating in a collaborative effort should be sufficient to insure the admission of 750 to 1,500 cases suitable for study within a two year period. The clinics should be well distributed geographically for reasons mentioned previously. An excessive number of participants makes the project unwieldy and may tend to introduce additional uncontrolled variables. It is believed that in a study of this character ten to fifteen clinics would be an optimum number.

Acceptance of Cases to Study.—Cases must be accepted by all participating groups in accordance with uniform criteria. These have already been discussed and do not need repetition here. On admission, the exact stage of the disease in each case should be noted, and in particular the precise time of onset of fever should be determined.

Controls.—Because of the great variability of the clinical course of poliomyelitis and because of the impossibility of making an accurate prognosis in a given case, it is essential that any group of patients treated with a new agent be compared with another group of patients exactly comparable in every respect except that the agent under investigation is omitted. To do this is not as simple as it would seem. A group of patients treated at one clinic cannot be compared with a control group seen at another clinic. Differences in the details of care of the patients, environmental surroundings, climate and many other factors cannot be made identical for the two groups. It is important, therefore, that the two groups to be compared be formed at each participating clinic.

Extraordinary care must be exercised in assigning cases to the test group and to the control group to insure exact comparability of the two groups. In order to minimize those differences which might occur because one patient is admitted on the first day of the disease and another on the twentieth day of the disease, a scheme of classification or "stratification" of patients must be adopted before assigning them to control or test groups. In the discussion of diagnostic criteria, it was recommended that no case seen after the twenty-eighth day of the disease be admitted to the study. It is recommended that those cases seen before the twenty-eighth day be grouped as follows: (1) preparalytic cases seen during the febrile illness; (2) paralytic cases seen during the febrile state up to seven days after the onset of the disease; (3) paralytic cases seen from the eighth to the twenty-eighth day after the onset of the disease.

The day of onset is considered as the day on which fever first appears. Control and test groups are to be formed within each of these three groups of patients.

It is recognized that the proposed stratification is crude and that each group will include cases of widely varying severity and clinical course. Although it might be desirable to make more restricted classifications and thus reduce the variability within each group, such refinement does not seem to be practicable unless it is known that each clinic will handle an extraordinarily large number of patients; otherwise the groups will be too small from which to form adequate control and test subgroups. The purpose of this procedure, however, is to insure that the control and test groups contain patients in approximately the same stage of the disease when the test procedures are applied.

The scheme of stratification may have to be modified, depending on the type of agent being studied. For instance, an antibiotic should be tested only during the acute febrile stage, since, presumably, the virus is no longer active in the disease after that time. It might be important in such circumstances to establish classifications or strata for short time periods; i.e., eighteen, twenty-four and thirty-six hours after onset.

The cardinal principle in assigning patients to either the control or the test group is that the assignments must be made in a completely random manner.[2] This means that such assignments must not be made in any systematic fashion. This requirement precludes the assigning of alternate cases to the control or test groups. Several schemes may be used to secure the desired randomization such as tossing a coin or drawing straws. The scheme proposed here is not considered to be better than other methods of randomization, but may have certain advantages from an administrative standpoint. It also insures that a uniform system is used by all clinics collaborating in the investigation. It is adopted from a method used in the British Empire Cancer Campaign, an investigation of estrogens in cancer.

Three books, corresponding to the three classifications of cases, are provided each clinic. These books contain lines on which the names of the patients are written in consecutive order as they are admitted and assigned a classification. Each line has previously been identified with a letter, C or T, indicating that the patient whose name falls on that line is to be assigned to the control or the test group.

The assignment of the letters T and C to the lines is performed by the central executive group in the following manner: Ten black balls and ten white balls are placed in a box and are removed one at a time by a blindfolded person. If a black ball is removed, a T is entered on a line; if a white ball is removed, a C is entered on the line. This operation is repeated until all lines in all books have been marked.

This procedure insures that the assignment of letters, and hence cases, is done in a random manner and also insures that in every twenty consecutive admissions 10 patients will be assigned to the test group and ten assigned to the control group. Thus one group can never exceed another by more than 10 cases.

The books should be kept so that the admitting physician who determines the data (time of onset, presence of localized weakness) on which the patient is classified never knows whether the incoming patient is to be assigned to the control or the test group.

Treatment of Patients.—It is of the utmost importance that both the test group and the control group of patients receive identical treatment with the one exception that the patients in the test group have added to their treatment the agent under investigation. Furthermore, it is important that the effects of the agent being tested be not confused with the effects of other therapeutic procedures. This requirement imposes certain technical and psychologic difficulties which merit discussion.

Only in diseases which are self limited and in which complete recovery can be expected without therapy is it permissable to compare a test group of patients with a control group receiving no treatment. Poliomyelitis is certainly not a disease in this classification. On the other hand, there is not now a universally agreed upon method of treatment, and it is exceedingly difficult, therefore, to devise a basic form of therapy, acceptable to all workers, adequate for the patient and at the same time of such a nature that comparison of patients treated by this regimen with those receiving some form of therapy can be depended on to demonstrate significant differences in results should the agent under investigation be effective.

No form of therapy of poliomyelitis in use today, except such procedures as tracheotomy or use of a respirator in certain forms of the disease, has been conclusively proved to be superior in end results to those observed in patients with no treatment. Even the value of tracheotomy is disputed. This, of course, does not refer to orthopedic procedures to correct deformity. Also, this does not mean that certain forms of therapy may not produce superior results, but the critical test has never been performed in an adequate manner. There is not, therefore, a generally accepted basic treatment for the disease. For instance, hot pack therapy as advocated by Sister Kenny as part of her treatment is used in comparatively few places, although many modifications are in use. Physical therapy procedures have not been standardized and vary markedly from clinic to clinic.

Unfortunately the public has become aware of certain procedures under the name of their original protagonist without knowing precisely of what those procedures consist. Public opinion has, in a number of instances, forced the adoption of costly treatment procedures against the better judgment of the responsible physicians and without adequate proof that such procedures are advantageous or superior to others advocated by more rational minds.

These factors make the adoption of a so-called basic treatment on which the therapeutic agent under test can be superimposed a difficult task. On the one hand, the treatment must be simple and easily standardized, and on the other hand it must satisfy the physicians, patients and the patients' relatives.

Because of this pronounced public opinion regarding treatment of poliomyelitis, some physicians and some physical therapists have formed strong convictions regarding treatment methods, based more on emotion than on scientific evidence. This emotional feeling may tend to introduce bias on the part of the physician and inadvertent or intentional differences in application of treatment procedures by physical therapists to patients in the control group as compared with the procedures used in the test group. Constant awareness of this possibility is necessary in order to avoid interference with or destruction of the design of the investigation.

It is also apparent that the precise details of the treatment procedures employed in both control and test groups will depend to some extent on the nature of the therapeutic agent to be tested. For instance, in the problem originally presented to the Therapeutic Trials Committee, moist heat was the agent to be tested. This precluded the use of hot packs, or for that matter, heat in any form, in procedures for the control group. If a drug were the agent to be tested, it might be possible to include heat in the basic treatment but might mean the exclusion of other drugs. It is necessary, therefore, in designing an experiment of this character to eliminate from the basic treatment any procedure or agent which would tend to confuse or augment the possible actions of the agent being tested. For these reasons it is not possible to outline in detail recommended basic treatment procedures, but certain aspects of treatment can be mentioned.

It is important to emphasize again that whatever basic treatment is adopted, both the control and test groups should receive this treatment in an identical manner. Furthermore, since any treatment of poliomyelitis involves manipulation of the patient, the personnel administering the treatment should each handle an equal number of patients in both test and control groups in order to minimize the effects of personal differences in technics.

It seems generally agreed that certain physical therapy procedures should be instituted early in the treatment of patients with poliomyelitis. The nature and extent of these procedures vary considerably among hospitals, and it is important that before embarking on a collaborative investigation agreement be reached among all participants regarding the detailed methods to be used and the frequency and duration of application to cases. Furthermore, physical therapy is applied by physical therapists whose training and experience vary in different institutions. No written directions can be prepared which would be wholly satisfactory for the standardization of such procedures. It should be apparent that such standardization is important in order to minimize a major variable which might affect the results of the investigation. If a drug is being tested, both the test and the control groups should receive the same symptomatic care for relief of pain and for maximum comfort.

The committee believes that the most satisfactory method of achieving standardization of physical therapy procedures to be used in treating patients included in a collaborative program would be to have the principal physical therapists from each collaborating institution brought together at one institution equipped to teach them the procedures agreed on by the investigators. The suggested training period for these physical therapists should be four to six weeks in duration and the training should be given not too far in advance of the contemplated time of starting the investigation. Training should be given under the direction of a competent physiatrist or orthopedic surgeon and a qualified physical therapist.

In order to insure that the standardization of procedures is maintained throughout the investigation, the personnel responsible for giving the original training should visit the collaborating institutions at intervals during the investigation, observe the procedures in operation and correct any departures from agreed technics. This activity is of importance, since it is likely that the duration of the investigation may be prolonged, depending on the number of cases available. The possibility of unconscious variations in technical procedures among the various institutions involved in the program must be guarded against.

If the application or administration of the therapeutic agent to the test group involves manipulation of the patient or necessitates some concomitant procedure, such manipulation or procedure must be given to the control group in exactly the same manner with the exception that the agent itself is omitted. It would be advisable, for instance, if the agent were a drug requiring frequent injection, to administer a "blank" or an injection of the vehicle at precisely the same intervals to the control group.

The question of when patients should be discharged from the hospital to the outpatient clinic is a difficult one and should be decided in advance of the investigation. The principle to bear in mind is that both the control and test groups be treated alike in this respect. This means that should it be decided that patients will be discharged at a certain stage of convalescence, *all* patients, in *both* the control and the treated groups, should be discharged at that stage of the disease.

The duration of observation of patients included in an investigative program should be sufficiently long for any spontaneous recovery to become fully apparent. In general, there seems to be no evidence that natural recovery extends beyond sixteen to eighteen months after the onset, and it is suggested that final examination of each patient be made eighteen months after the onset of the disease.

EVALUATION OF RESULTS

In a disease such as poliomyelitis the end results in a given patient cannot be appraised without an accurate knowledge of the extent of the original disability and the progress of the recovery. In the evaluation of the extent of the disease and the degree of residual paralysis at the end of observation, reliance has to be placed on manual muscle examination. Unfortunately, manual muscle examination is not a procedure which lends itself readily to quantitative evaluation and the factor of judgment of the observer plays an important role in the interpretation of results. Furthermore, some muscles can be examined and their functional capacity determined more readily and more accurately than others. Poliomyelitis is frequently, if not always, selective with respect to the muscles affected, and it is seldom, if ever, possible to find 2 patients with the same muscles involved to exactly the same degree. It is not possible, therefore, to design an experiment wherein one patient may be paired with another for purposes of comparison.

Grade	Grade as Used by National Foundation for Infantile Paralysis	Definition
0	0	No palpable contraction
Trace or 1	1	Palpable contraction of muscle, but no motion of the part which the muscle should move
Poor — or 2	2—	Muscle will move part, but not against gravity and not through a full range
Poor or 3	2	Muscle moves the part through its range, but not against gravity
Fair — or 4	3—	Muscle will move part against gravity, but not through a full range
Fair or 5	3	Muscle will carry part through its range of motion against gravity, but not against added resistance
Good or 6	4	Muscle will lift part against gravity and added resistance, but lacks normal strength
Normal or 7	5	Normal strength

Muscle Examinations.—The first muscle examination of each patient should be made as early in the disease as possible. It is probably not feasible to make an adequate examination during the acute febrile stage, but a complete examination should be commenced within forty-eight hours after the fever has subsided and, depending on the condition of the patient, carried out in piecemeal fashion over a period of several days. Examinations should then be made at monthly intervals after the onset of the disease during the first six months, at two month intervals during the second six months and at the fifteenth and eighteenth month after the onset of the disease.

It is not within the province of this report to detail the precise methods to be used in making muscle examinations. It is important, however, that the same methods be used on every patient in all participating institutions. This will be discussed in more detail later. The methods used should permit a semiquantitative grading of the functional capacity of the muscle, and the committee recommends that some such scheme as the one shown in the accompanying table be used in assessing and recording the function of each muscle tested.

It must be recognized that these are arbitrary classifications and that there is no sharp dividing line between them. If the numerical values are used, it should be borne in mind that these numbers do *not* have the properties or accuracy suggested by their commonly accepted values and that numerical manipulation of the results of several muscle examinations may easily lead to erroneous or ridiculous conclusions.

The questions of how many muscles to examine and, if not all are examined, which shall be subject to study, are difficult to answer. To examine every muscle in every patient is a task which would require a large personnel, and if many patients are seen such a task might be impossible. Because of the fact that poliomyelitis can affect almost any of the muscles, a large number must be examined and evaluated. Before commencing the investigation, a complete list of muscles to be studied should be prepared and agreed on by all investigators.

In making muscle examinations, particularly early in the disease, it is important to distinguish between paralysis and spasm. Furthermore, diminution of motion or pseudoparalysis due to pain must be distinguished from actual paralysis due to anterior horn cell damage. Therefore, there is need for repeated examinations and separate reporting of results in cases with and without pain.

Evaluation of Pain and Tightness.—Neither pain nor tightness lends itself to quantitative determination. The judgment of the observers will have to be relied on, and too much consideration should not be given to changes in these symptoms, unless the changes are large and dramatic.

Muscle Examiners.—Since differences in technics and in judgment affect the results of manual muscle examinations, it is not always possible to compare the results of an examination made by one group of examiners with those of another. However, in a collaborative study, where data are pooled, it is essential that the data derived from muscle examinations made at the various collaborating institutions be comparable. To meet this difficulty it appears advisable to have all muscle examinations made by the same persons.

The Committee recommends that in any collaborative study of poliomyelitis in which the evaluation depends on the results of muscle examinations a team of muscle examiners be established and trained in a uniform manner, and that they travel among the various collaborating institutions, examining all patients.

It is further recommended that the examiners not be informed as to which patients are in the control group and which in the test group. Furthermore, on repeat examinations of the same patient, the examiners should not be permitted to see the records of their previous examination. These recommendations are made with the view of preventing the results of a given examination from being influenced by unconscious bias on the part of the examiner or by observations made previously on the same patient.

Criteria of Evaluation.—The principal basis on which the effects of the agent on the outcome of the disease will be measured is the degree of difference in residual paralysis between the test and the control groups. This difference will have to be determined by comparison of the results of muscle examinations in the two groups. From a technical standpoint this is a difficult task and is one in which the services of a competent statistical consultant will be needed. Such a consultant should be a member of the joint planning group and attached to the central executive group.

The factors which enter into the final evaluation are the following: (1) rapidity of improvement in paralysis as shown by repeated muscle examinations; (2) the residual disability as revealed by muscle examination at the end of eighteen months after the onset of the disease; (3) the comparative incidence of paralysis in test and control groups for those first admitted in the preparalytic stage; (4) residual weakness; (5) muscle spasm with residual shortening and fibrosis; (6) atrophy; (7) evidence of vasomotor disturbances including cyanosis of extremities, thrombophlebitis, etc.; (8) total disability (this takes into account differences in importance of various muscle groups); (9) effects of therapy on pain and tightness.

It should be pointed out that the appraisal of the end result of therapy from the standpoint of the effectiveness of the tested agent is approached from a different point of view than an appraisal of the end result of the disease. From the standpoint of the rehabilitation of the patient it is more important that certain muscles regain useful function than it is for other muscles to recover from paralysis. From the standpoint of appraising the effects of a therapeutic agent, the effect on the muscle function per se without regard to its importance to the patient is the major aspect. It is also important to distinguish between objective measurable paralysis and purely functional results. Some patients are undoubtedly more effective in overcoming their handicaps than others. The fact that one patient could, somehow or other, walk and another could not would not necessarily mean a difference in their paralysis.

Method of Evaluation.—It should be obvious from the discussion of the criteria that the element of judgment based on experience plays an important role in the evaluation of the results. That this judgment may vary among those who might be called on to evaluate the results of an investigation is inevitable, and some means must be devised to reduce this variable. The precise determination of the end result in a given patient, while important, is not as important as that of insuring uniformity in evaluation of the end results in all patients.

It seems advisable, therefore, to recommend that the evaluation of results be performed on all patients by the same persons. For this purpose, a team of competent experts should be formed, whose duty would be to visit each institution, examine each patient in both the control and test groups at the end of the period of treatment and observation. At the time of examination of the patient these experts should not know whether the patient is in the test group or in the control group, so as to avoid any influence of unconscious bias on the judgment of the examiner.

The proper selection of these experts is an important matter. They should not be drawn from among the participating investigators for obvious reasons. They should be persons who have no strong convictions regarding the efficacy of any form of therapy but who are familiar with the results of orthodox treatments. It would seem advisable to include in the evaluating group an orthopedic surgeon, a physiatrist, a pediatrician and a neurologist, all of whom have had considerable experience with poliomyelitis and are recognized as authorities in their respective fields.

After all data have been collected, the task of evaluating them must be performed jointly by the participating investigators, evaluating group, and the statistician. The data which should be available for study are:

1. The results of the repeated muscle examinations on the patients.
2. The appraisal of the investigators as to the amount of pain, tenderness and tightness at various stages of the diseases in the patients.
3. The comparative incidence of paralysis in those patients admitted in the preparalytic stage.
4. The results of the examinations of the evaluating group with respect to:
   (*a*) Residual disability of the patients at the end of observation.
   (*b*) Residual weakness.
   (*c*) Atrophy.
   (*d*) Evidence of vasomotor disturbances.
   (*e*) Total disability.

The participants and experts must evaluate the relative importance of the various observations in order that the statistician can apply the proper weighting to the data. Finally, any observed differences in results between the two groups, control and test, must be tested for their significance. The investigators must agree as to the magnitude of the difference which they will consider significant from a practical standpoint, and the statistician can inform them whether, from the data obtained, such a difference could have occurred from the operation of chance and what the probability is that chance would produce the observed difference.

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SUMMARY

Poliomyelitis is a disease characterized by extreme variability in its course and in the degree of disability produced in victims.

Among the variables which must be controlled in any investigation of the efficacy of a therapeutic agent in this disease are the following: variations in diagnostic criteria, unpredictability of the course of the disease, unpredictability of outcome, effects of different immunologic types of the virus, effects of climatic and geographic variations, age distribution of cases, variations in technics of applying treatment and variations in measuring and judging extent of paralysis, deformity and disability.

Because of the many variables involved, it is necessary to observe a large number of patients in order to evaluate the effects of any therapeutic regimen in poliomyelitis; this, then, involves a collaborative effort of a number of institutions.

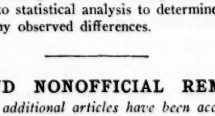
The methods proposed for investigation and evaluation involve acceptance of cases according to predetermined diagnostic criteria, classification of cases according to the stage of the disease on admission, establishment of control and test groups within each classification and assigning cases to these groups in a completely random manner, administering identical treatment to both the test and control groups with the single exception of the variant to be studied, administering treatment by physical therapists pretrained in uniform procedures, following the progress of each patient by semiquantitative standardized muscle examinations administered by a traveling group of specially trained examiners, evaluation of results in each patient by a group of experts especially chosen for this purpose and weighing of the results according to their reliability and importance and subjecting them to statistical analysis to determine the probable significance of any observed differences.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

DESOXYCORTICOSTERONE ACETATE-U. S. P.—Doca Acetate-Organon.—17-(β)-[1-keto-2-acetoxyethyl] Δ^4 androstene-3-one. The structural formula may be represented as follows:



For description and standards see the U. S. Pharmacopeia under Desoxycorticosterone Acetate.

Actions and Uses.—Desoxycorticosterone has been isolated from the adrenal cortex in small amounts and is prepared synthetically as the acetate. Desoxycorticosterone acetate is highly selective in its biologic activity. It has no demonstrable direct effect on protein or carbohydrate metabolism in man and little if any in experimental animals. It has no effect on estrogenic or androgenic activity and no effect on pigmentation. Its known activity is limited to that of the metabolism of sodium, potassium and water and is mediated through its action on the renal mechanism. It causes an increase in retention in the sodium ion and water and an increase in the excretion of potassium, presumably by modification of reabsorption of these substances by the renal tubules. In therapeutic dosages, in patients with adrenal insufficiency, it restores the serum sodium and potassium and the plasma volume to normal levels. It also elevates the blood pressure. Secondary to the increase in blood volume, there results an increase in cardiac output with a decrease in nitrogen retention, increase in the absorption of fat and glucose from the intestine and increase in strength as well as appetite.

It has been established that desoxycorticosterone acetate, despite its limited range of physiologic activity, is of great value in the management of adrenal insufficiency, both in maintenance and in the treatment of crises. Many patients with chronic adrenal insufficiency are enabled to resume essentially normal activity by the administration of desoxycorticosterone acetate and sodium chloride alone. In patients with recurrent hypoglycemia and in patients with acute adrenal insufficiency, therapy with this synthetic adrenal steroid should be supplemented with adrenal cortical extracts containing other physiologically active steroids.

Dosage.—The dosage of desoxycorticosterone acetate required for maintenance varies from 1 to 7 mg. daily. It is dependent primarily on individual variation and on the amount of sodium salts in the diet; i. e., the higher the salt intake the lower the requirement of the adrenal steroid. Experience indicates that most patients require about 3 mg. daily when taking 3 to 6 Gm. of sodium chloride in addition to that contained in the normal diet.

In the management of acute adrenal crises, 10 to 15 mg. may be required twice a day for one or two days in conjunction with liberal quantities of whole adrenal cortical extract and with 1 or 2 daily infusions of 1,500 cc. of 5 per cent dextrose in isotonic sodium chloride solution. Transfusion of whole blood or plasma may also be indicated to combat shock.

Desoxycorticosterone acetate is insoluble in water and usually administered in oil by subcutaneous or intramuscular injection. After the maintenance dose has been carefully determined, pellets may be implanted subcutaneously to avoid repeated injections. A pellet of 125 mg. is approximately equivalent to a daily injection of about 0.5 mg. Pellets are usually effective for about one year. Symptoms of adrenal insufficiency begin to recur when the pellets are absorbed. Crumbling of pellets may result in increased absorption and evidence of overdosage.

Caution: Significant toxicity results from excessive amounts of desoxycorticosterone acetate. The most frequent signs are edema, pulmonary congestion, cardiac dilatation and failure. Arterial hypertension develops in about 30 per cent of patients with chronic adrenal insufficiency after treatment for several months or years. This may require a cautious reduction in the dosage of the steroid or salt or both. Occasionally toxicity due to a decrease in serum potassium concentration in the blood is associated with sudden bouts of weakness and characteristic changes in the electrocardiogram.

ORGANON, INC., ORANGE, N. J.

Solution Doca Acetate in Oil: 5 mg. per cc. in peanut oil, 1 cc. ampuls and 10 cc. vials.

U. S. patent 2,312,481; U. S. trademark 372,214.

ESTROGENIC SUBSTANCES (WATER INSOLUBLE) (See New and Nonofficial Remedies 1948, p. 370).

The following dosage form has been accepted:

KREMERS-URBAN COMPANY, MILWAUKEE

Solution Estrugenone in Oil: 2,000 I. U. per cc. in sesame oil, 1 cc. ampuls and 30 cc. vials; 10,000 I. U. per cc. in sesame oil, 1 cc. ampuls and 10 cc. vials, and 20,000 I. U. per cc. in sesame oil, 10 cc. vials. Preserved with chlorobutanol 0.5 per cent.

U. S. Patent 377,549.

PENICILLIN (See New and Nonofficial Remedies 1948, p. 148).

The following dosage forms have been accepted:

COMMERCIAL SOLVENTS CORPORATION, NEW YORK

Tablets Crystalline Potassium Penicillin G: 50,000 units, 2 cc. vials, each containing two tablets for the preparation of sterile solution.

PREMO PHARMACEUTICAL LABORATORIES, NEW YORK

Crystalline Procaine Penicillin G in Oil: 300,000 units per cc. in sesame oil with hydrogenated peanut oil, 1 cc. disposable syringe.

THE WM. S. MERRELL CO., CINCINNATI

Crystalline Procaine Penicillin G in Oil: 300,000 units per cc. in sesame oil, 10 cc. vials.

SCHENLEY LABORATORIES, INC., NEW YORK 1

Ointment Potassium Penicillin: 1,000 units per gram, 28.35 Gm. tubes.

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SATURDAY, JUNE 11, 1949

A FEMALE ALEXIS ST. MARTIN

When William Beaumont treated Alexis St. Martin, whose stomach as a result of a shotgun wound could be viewed directly through an external opening, he made physiologic observations which greatly increased our knowledge of the physiology of the stomach. These studies were carefully made for many years and have become a classic example of research limited largely to simple and direct clinical investigation.

Since these pioneer studies, other observers have gained insight regarding gastric physiology by observing other persons who have, for one reason on another, presented external openings through which the interiors of their stomachs could be examined. Until recently all these patients were male. Now a woman patient with a large gastric fistula has become available for study and observations have been made which in some respects at least differ from those made in the male.

These recent observations were made on a Negro woman, 24 years old, by Drs. Crider and Walker [1] of the Washington University School of Medicine in St. Louis. The patient was first studied at the Homer Phillips Hospital and later at the Barnes Hospital and in the Department of Physiology of the Medical School. The patient's fistula followed an infection developing around a gastrostomy opening which had been made in order to feed her following a complete closure of the esophagus as an aftermath to the accidental swallowing of lye. The stricture was an extensive one, starting at the upper end of the esophagus and involving much of the rest of the glottis down to the cardia. A large number of plastic and other procedures were necessary in order to restore the lumen. During this period the patient consented to a proposed series of physiologic studies, and indeed seemed eager to cooperate. Not only was this the first opportunity to observe directly the interior of the stomach in a woman, but, as pointed out by Crider and Walker, the opening in this instance was much larger than in any of the previous persons studied.

After establishing a standard base line of observation, Crider and Walker became interested in the response of the stomach to various emotional situations. In all men previously studied, beginning with Alexis St. Martin, resentment, anger and similar emotions were nearly always followed by hyperemia, hypermotility and hypersecretion of the gastric mucosa. It was unexpected, therefore, when such an effect failed to appear in the woman in spite of many trials. Indeed, emotional situations seemed to have the opposite effect in that a decrease in gastric activity followed. Repeatedly, situations involving anger, resentment, fear and anxiety were associated with decreased motility and secretion of the stomach with blanching of the mucosa. This was accompanied by a secretion which had a lower hydrochloric acid content. The investigators suggest that this difference may explain the well established fact that peptic ulcer has a much lower incidence in women than in men. Menstruation did not have any appreciable effect on the behavior of the stomach. Painful stimuli caused a pronounced increase of the motility, but had little effect on secretion or blood supply as shown by the color gradient of the mucosa. Heartburn, nausea, retching and reflux of bile-stained secretion could be readily produced by mechanical stimulation in the region of the cardiac sphincter, which was within reach through the large fistula.

Other observations were made [2] on the influence of intravenous injections. Solutions containing dextrose and sodium chloride alone did not provoke change in the resting activity of the stomach, whereas the addition of amino acid mixtures was followed by a decrease both in the motility and in the secretion. This inhibiting effect was produced by a mixture of pure amino acids as well as by hydrolyzed protein. On several occasions when amino acids were injected at a sufficiently rapid rate to provoke nausea and vomiting, a change was not observed in the stomach itself, thus suggesting that this effect was probably central in origin.

Further studies will no doubt be made in this woman; they may well provide further information regarding gastric physiology as influenced by many factors and particularly those of psychogenic nature with special reference to sex differences.

1. Crider, R. J., and Walker, S. M.: Physiologic Studies on the Stomach of a Woman with a Gastric Fistula, Arch. Surg. **57**: 1-9 (July) 1948.

2. Crider, R. J., and Walker, S. M.: Effect of Intravenously Administered Amino Acids on the Stomach of a Woman with a Gastric Fistula, Arch. Surg. **57**: 10-17 (July) 1948.

RECOVERY FROM CYANIDE POISONING

The annual number of reported deaths from cyanide poisoning in the United States since 1909 has varied from 79 to 245. Cyanide poisoning is commonly believed to be always fatal. Actually 22 cases of recovery after ingestion of sodium or potassium cyanide have been reported in the American, English and French literature. Additional cases of recovery from poisoning by cyanide from routes other than ingestion, including a number in which silver polish was supposed to have been the toxic agent, have also been recorded. As a rule, the exact quantity that has entered the body is difficult to ascertain. The patient's testimony is obviously unreliable, and seldom is there an adequate determination of the content of cyanide in the patient's blood or urine.

Liebowitz and Schwartz [1] have recently recorded the case of a chemist who was admitted to the hospital one hour after ingestion of potassium cyanide in a suicidal attempt. Shortly after admission a qualitative test of the stomach washings showed cyanide present in large amounts. Blood cyanide determinations revealed 20 mg. of hydrogen cyanide per hundred cubic centimeters of blood in a specimen drawn two hours after admission to the hospital, thus making an estimated total of 1.2 Gm. of hydrogen cyanide in the total blood volume. Assuming that there was twice this amount in the entire body, and since the patient weighed approximately 80 Kg., the concentration of hydrogen cyanide would have been 30 mg. per kilogram. This is about thirty times the estimated lethal dose. Nevertheless, the patient recovered, although specific therapy was not given. The paper by Liebowitz and Schwartz is believed to be the first in which blood cyanide determinations were recorded as having been done in the living person.

Treatment of cyanide poisoning has thus far been unsatisfactory, largely because cyanide is usually so rapidly fatal. Methylene blue was one of the first drugs used for cyanide intoxication. Originally, methylene blue was believed to act as a respiratory catalyst, but more recently it has been claimed that its specific antidotal effect was in producing methemoglobinemia. The methemoglobin then combines with the cyanide ion to form the relatively nontoxic cyanmethemoglobin. The latter is believed to be slowly converted by sulfhydryl groups to thiocyanate and eliminated as such. Glucose is also thought to have an antidotal effect. Combined therapy with amyl nitrite, sodium nitrite and sodium thiosulfate has been determined to be several times more effective than methylene blue alone in protecting dogs from otherwise fatal doses of cyanide. The currently favored treatment [2] includes the immediate use of amyl nitrite pearls followed by intravenous injection of sodium nitrite and, finally, of sodium thiosulfate. Excess methemoglobin formation from administration of nitrites may be ascertained roughly by increasing cyanosis despite clinical signs of improvement and may be combated by repeated blood transfusions and the administration of oxygen.

1. Liebowitz, D., and Schwartz, H.: Cyanide Poisoning, Am. J. Clin. Path. **18**: 965, 1948.
2. Chen, K. K.; Rose, C. L., and Clowes, G. H. A.: Methylene Blue, Nitrites and Sodium Thiosulphate against Cyanide Poisoning, Proc. Soc. Exper. Biol. & Med. **31**: 250, 1933.

SEXUAL REPRODUCTION IN VIRUSES

Bacterial viruses can enter bacteria, where they reproduce themselves in large numbers; later they are released by rupture of the bacterium and its conversion into a mass of bacteriophage or virus particles.[1] Bacteria and the viruses that feed on them have been considered one of the best and simplest systems for study of multiplication of viruses. Discussing the "interference phenomena" in virus diseases, Andrews [2] wrote that the existence of one virus in a host often precludes the entrance of a second virus. Such interference phenomena have been demonstrated many times in tissue cultures and with the bacterial viruses. With a variation of this principle, Delbrück and Bailey [3] recently uncovered new information about the reproductivity and method of establishment of mutant strains of virus. They worked with viruses T_2 and T_{4r}, which are genetically related and can enter and reproduce in the same bacterium of a strain B. Differentiation characteristics of T_2 were that it produced a small colony and could destroy a mutant strain of a bacterium A; characteristics of virus T_{4r} were that it produced a large colony and could destroy a mutant strain of a bacterium C. When both were grown jointly in bacterium B, both parent types were released as expected. In addition, two new types of virus were released with the parent characteristics switched; i. e., one type with a small colony that destroyed bacterium C and a second type with a large colony that destroyed bacterium A. This obviously suggested an interchange of material between the parent viruses typical of the interchange of parent factors in formation of new individuals, which characterizes sexual reproduction.

Other experimentation relative to mutations in viruses by S. E. Luria, Indiana University, revealed that in viruses considered to be composed of a number of vital elements several elements could be destroyed by ultraviolet radiation. Evidence was advanced that a virus thus treated was singly unable to reproduce itself; when two or more partially destroyed viruses entered a single bacterium, however, an apparent combination of the remaining uninjured elements occurred, resulting in a new individual, which was able to reproduce itself and destroy the bacterium. This experimental process closely parallels the production of

1. Wyckoff, R. W. G.: Electron Microscopic Study of Viruses J. A. M. A. **136**: 1081 (April 24) 1948.
2. Andrews, C. H.: Viruses and Disease in Man, Practitioner **160**: 82 (Feb.) 1948.
3. Delbrück, M., and Bruce, M.: Bacterial Viruses and Sex, Scient. Am. **179**: 46 (Nov.) 1948.

artificial mutations in Drosophila, wherein selective destruction of genes is procured by irradiation of chromosomes. Although much further study of these apparent reproductive characteristics in viruses is necessary, the implications are startling. Most investigators hold that viruses are living organisms even though some of their characteristics, particularly their tendency to assume true crystallization forms, have led others to consider that viruses lie at the lowest level of life or on the borderline between life and nonlife. Biochemical studies which have demonstrated a close parallel between viruses and enzymes that can be synthesized in the laboratory have emphasized this latter view. Implications of the present studies are that viruses have a natural method for production of infinite numbers of new strains closely approximating the sexual mechanisms of higher organisms. The probabilities are that new disease-producing forms will occur frequently. Mutant strains of viruses have already been extremely beneficial to man. The 17 D strain of yellow fever virus and vaccinia virus are considered to be mutations of the viruses of yellow fever and smallpox. Therefore the probability of eventual development of an effective poliomyelitis vaccine exists. A much broader interpretation of virus, gene and enzyme studies is that the cell, as a sharp line of demarcation between life and nonlife, must be considered more relative than real.

Current Comment

ADDICTION LIABILITY OF METHADONE

Methadone, one of the newer synthetic analgesic drugs, has found wide usage as a substitute for morphine to relieve pain. In therapeutic doses methadone produces less sedative or hypnotic effects than morphine. The pharmacologic properties of the drug are already well established, as well as the fact that it is capable of producing addiction, similar to that produced by morphine. The addiction liability of methadone and tolerance to its analgesic action have been the subject of previous reports warning against this inherent danger.[1] Because methadone is not an opiate, physicians may have underestimated its addiction potentiality, despite the fact that the drug has been made subject to all the provisions of the Harrison Narcotic Act. Studies of morphine addicts have shown that while methadone produces less physical dependence than morphine, it does produce sufficient euphoria, emotional dependence and signs of abstinence on withdrawal to make it acceptable as a substitute for morphine in persons strongly addicted to that drug. The total addiction liability of methadone is thus considered to be almost as great as that of morphine. For this reason, physicians who prescribe methadone should do so with full awareness that this drug deserves the same respect and caution that is exercised in the prescribing of opiates such as morphine.

1. Isbell, H.; Wikler, A.; Eddy, N. B.; Wilson, J. L., and Moran, C. F.: Tolerance and Addiction Liability of 6-Dimethylamino-4-4-Diphenyl-Heptanone-3 (Methadon), J. A. M. A. **135**: 838-894 (Dec. 6) 1947; Anslinger, H. D.: Methadon Addiction, Correspondence, J. A. M. A. **138**: 609 (Oct. 23) 1948.

GRANULOMATOUS NOCARDIOSIS

Cuttino and McCabe [1] describe a new disease in man of which symptoms included are enlargement of the abdomen, malnutrition and an afebrile course. A recently discovered acid-fast organism which the authors assign to the family of Actinomycetacae under the name of Nocardia intracellularis appears to be the cause. "In man the disease produced by this organism is a pure form of granulomatous inflammation, characterized by phagocytosis of the pathogen by reticuloendothelial cells and proliferation of these cells." In the case described, the body was extremely emaciated with great abdominal distention by some 500 cc. of chylous fluid. Similar fluid was found in lesser quantities in the pleural cavities. The abdominal organs were displaced by a large mass consisting of conglomerate lymph nodes which, on section, were brilliant yellow. In the small intestine lesions were not apparent, but ulcers were strewn through the length of the colon and in the immediate vicinity the lymph nodes were enlarged and bright yellow. The spleen was only slightly enlarged, and scattered through it were yellowish areas which, on microscopic examination, consisted of phagocytosed macrophages. The marrow of the sternum, the vertebrae and femur was partially replaced by similarly yellowish tissue. Since the most numerous and largest lesions were found in the retroperitoneal and mesenteric lymph nodes and in the lymphoid tissue of the intestines, the gastrointestinal tract is suggested as the portal of entry. The authors state that the intracellular parasitism of an acid-fast organism resembling that of granulomatous nocardiosis finds its analogue in human and rat leprosy and in Johne's disease in cattle. However, in sections of rat leprosy compared with the new lesion, while extensive phagocytosis and macrophagic proliferation were found, the lymph node structures did not show the widespread alteration in the disease which they described. In Johne's disease the lesions are distributed chiefly through the gastrointestinal tract and the causative organism possesses cultural and morphologic characteristics which differentiate it sharply from the one that is responsible for granulomatous nocardiosis. As the causative organism is regarded as a species of Nocardia and as there are sharp differences between it and known species of this genus, the investigators conclude that the organism represents a hitherto undescribed variety. Furthermore, Nocardia intracellularis produces a nonlethal disease in guinea pigs, rats and mice but does not cause lesions in chickens, rabbits, frogs and goldfish; the lesions heal rapidly in the susceptible animal.

1. Cuttino, J. T., and McCabe, A. M.: Pure Granulomatous Nocardiosis: A New Fungus Disease Distinguished by Intracellular Parasitism, Am. J. Path. **25**: 1, 1949.

ORGANIZATION SECTION

Official Notes

EIGHT STATES NOW

The Delaware House of Representatives, on May 12, passed a resolution memorializing Congress not to enact legislation imposing compulsory health insurance on the people of the country. This makes eight states to date expressing objection from one or both houses to the federalization of medicine.

Washington Letter

(From a Special Correspondent)

June 6, 1949.

New Health Legislation Introduced as Hearings Continue

House and Senate committee hearings on proposed national health legislation, now approaching the end of the first month, won fresh interest late in May with the introduction of additional bills. Most noteworthy were the eight identical bills, filed simultaneously in Senate and House, on federal subsidization of voluntary prepayment plans and the Miller bill, which calls for an impartial, bipartisan study of the nation's health. The new measures have been referred to the health subcommittees which are in the midst of conducting public hearings.

Meanwhile, Federal Security Administrator Oscar R. Ewing continued his speech-making campaign in support of compulsory health insurance. Addressing the annual meeting of the Proprietary Association of America at White Sulphur Springs, W. Va., on June 3, he said that one of the benefits it would bring about is great improvement of the drug business. Another is its guarantee against racial discrimination, Mr. Ewing said two days earlier in an address before the Association of Freedmen's Internes.

During the week ended June 4, witnesses appearing before the Senate subcommittee on health (Senator James E. Murray, chairman) included Dr. Paul R. Hawley, Dr. Hugh R. Leavell, Dr. R. H. Hutcheson, representatives of the three national hospital associations, spokesmen for organized labor and others.

Medical, dental and nursing educators were scheduled to go before the Murray subcommittee during the week beginning June 6. Provisions of the Thomas-Murray-Dingell, Taft, Hill and Flanders-Herter bills for government assistance to professional schools and their students were to be the subject of their testimony. The same issue is scheduled to be taken up June 9-10 by the House subcommittee, of which Representative J. Percy Priest is chairman.

Senator Ralph E. Flanders (Vermont) and Representative Christian A. Herter (Massachusetts) are principal sponsors of the new all-Republican bill, which has seven other co-sponsors. They are Senator Irving M. Ives (New York) and Representatives Case (New Jersey), Javits (New York), Fulton (Pennsylvania), Hale (Maine), Morton (Kentucky) and Nixon (California). Theirs is an omnibus measure, with provisions for federal grants to medical and nursing schools, inducements to improve conditions in areas where there are shortages of medical and hospital facilities, increased government aid for hospital expansion generally and more funds for development of local public health units.

The bill's most novel feature, and the one expected to provoke the most discussion, is its plan to promote universal coverage in voluntary prepayment plans through sliding scales of premium payments. Rates would be based on the subscriber's income. Figured on a "yardstick" charge of 3 per cent, the family with a $2,500 annual income would pay a monthly premium of $6.25 for medical and hospital coverage, for example. Deficits would be made up through government subsidy.

Witnesses who presented arguments against adoption of compulsory health insurance were Dr. Hawley, speaking for the Blue Cross and Blue Shield Commissions; Mr. van Steenwyk, Associated Hospital Service of Philadelphia; Dr. Hutcheson, Tennessee health commissioner and president of the Association of State and Territorial Health Officers; John H. Hayes, representing the American Hospital Association; John H. Olsen, for the American Protestant Hospital Association; Rev. Donald A. McGowan, National Catholic Welfare Conference, and Rt. Rev. Msgr. George Lewis Smith, president of the Catholic Hospital Association.

Supporters of the Thomas-Murray-Dingell bill who appeared before the subcommittee were James Carey and Nelson Cruikshank, for the Congress of Industrial Organizations and the American Federation of Labor, respectively. Dr. Leavell, representing the American Public Health Association, confined his presentation to a comparison of strength and weaknesses of various titles of the Taft, Hill and Thomas-Murray-Dingell bills.

Sole witness to be heard by the Murray subcommittee in support of S. 1106, which would provide "free" drugs and certain medical services at government expense, was the bill's sponsor, Senator Henry Cabot Lodge Jr., Republican, of Massachusetts.

Medical Legislation

Florida

Bill Enacted.—H. 138 became Law without Approval May 16, 1949. It grants to **expert witnesses** a witness fee in such reasonable amount as the trial judge may determine, the same to be taxed as costs in the case.

Oregon

Bill Enacted.—H. 530 was approved May 2, 1949. It provides for the establishment of **a temperance and rehabilitation division** of the Oregon liquor control commission which is authorized to continue, maintain and operate a rehabilitation clinic and agency for the treatment of persons addicted to the excessive use of alcoholic beverages.

Pennsylvania

Bills Enacted.—H. 911 has become Act No. 323 of the Acts of 1949. Among other things, it provides that the **registration of a pharmacist or** assistant pharmacist may be revoked for paying rebates to physicians or entering into any agreement with a physician for payment in any form for the recommending of the professional services of either party. S. 834 has become Act No. 378 of the Acts of 1949. It amends the law relating to **prepaid medical service** plans by authorizing the organization of prepaid dental service corporations.

Rhode Island

Bills Enacted.—H. 507 was approved May 9, 1949. It authorizes the appointment of a chief medical examiner to perform all autopsies and act as **state pathologist.** Such person must be a doctor of medicine, qualified in pathology, with at least one year of medicolegal training. He shall make examinations on the bodies of such persons only as appear to have met their death from violence, or suddenly when in apparent good health, or when unattended by a physician or in any suspicious or unnatural manner or as the result of an abortion or suspected abortion. H. 904 was approved May 13, 1949. It is a general amendment to and reenactment of the **hospital licensing law.** H. 923 was approved May 9, 1949. It requires the giving of instruction in **health and physical education** at least twenty minutes each school day in all grades, 1 through 12, of the public schools.

Vermont

Bill Enacted.—H. 330 was approved May 12, 1949. It provides an appropriation of $350,000 for the construction of a **public health laboratory** and workshop in the city of Burlington, to be constructed under the supervision of the building council in consultation with the state board of health.

Coming Medical Meetings

American Association of Railway Surgeons, Chicago, Drake Hotel, June 30-July 2. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

American Neurological Association, Atlantic City, Chalfonte-Haddon Hall, June 13-15. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.

Idaho State Medical Association, Sun Valley, June 20-23. Dr. Alfred M. Popma, 220 N. First St., Boise, Secretary.

Maine Medical Association, Poland Spring, Poland Spring House, June 19-21. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

New Hampshire Medical Society, Newcastle, Hotel Wentworth, June 14-15. Dr. Carleton R. Metcalf, 5 S. State St., Concord, Secretary.

Society for Investigative Dermatology, Atlantic City, Ritz Carlton Hotel, June 11-12. Dr. S. William Becker, 55 E. Washington St., Chicago 2, Secretary.

Society of Biological Psychiatry, Atlantic City, Chalfonte-Haddon Hall, June 12. Dr George N. Thompson, 1136 W. Sixth St., Los Angeles, Secretary.

PROGRAM OF THE AMERICAN MEDICAL ASSOCIATION FOR THE ADVANCEMENT OF MEDICINE AND PUBLIC HEALTH

A Federal Department of Health

1. Creation of a Federal Department of Health of Cabinet status with a Secretary who is a Doctor of Medicine, and the coordination and integration of all Federal health activities under this Department, except for the military activities of the medical services of the armed forces.

Medical Research

2. Promotion of medical research through a National Science Foundation with grants to private institutions which have facilities and personnel sufficient to carry on qualified research.

Voluntary Insurance

3. Further development and wider coverage by voluntary hospital and medical care plans to meet the costs of illness, with extension as rapidly as possible into rural areas. Aid through the states to the indigent and medically indigent by the utilization of voluntary hospital and medical care plans with local administration and local determination of needs.

Medical Care Authority with Consumer Representation

4. Establishment in each state of a medical care authority to receive and administer funds with proper representation of medical and consumer interest.

New Facilities

5. Encouragement of prompt development of diagnostic facilities, health centers and hospital services, locally originated, for rural and other areas in which the need can be shown and with local administration and control as provided by the National Hospital Survey and Construction Act or by suitable private agencies.

Public Health

6. Establishment of local public health units and services and incorporation in health centers and local public health units of such services as communicable disease control, vital statistics, environmental sanitation, control of venereal diseases, maternal and child hygiene and public health laboratory services. Remuneration of health officials commensurate with their responsibility.

Mental Hygiene

7. The development of a program of mental hygiene with aid to mental hygiene clinics in suitable areas.

Health Education

8. Health education programs administered through suitable state and local health and medical agencies to inform the people of the available facilities and of their own responsibilities in health care.

Chronic Diseases and the Aged

9. Provision of facilities for care and rehabilitation of the aged and those with chronic disease and various other groups not covered by existing proposals.

Veterans' Medical Care

10. Maintenance of existing high standards of medical care for veterans, including extension of facilities where the need can be shown and, where practicable, care of the veteran in his own community by a physician of his own choice.

Industrial Medicine

11. Greater emphasis on the program of industrial medicine, with increased safeguards against industrial hazards and prevention of accidents occurring on the highway, at home and on the farm.

Medical Education and Personnel

12. Adequate support with funds free from political control, domination and regulation of the medical, dental and nursing schools and other institutions necessary for the training of specialized personnel required in the provision and distribution of medical care.

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GOVERNMENT SERVICES

NAVY

NEW FLIGHT SURGEONS

At graduating exercises at the Naval School of Aviation Medicine, Pensacola, Fla., April 13, seven newly designated flight surgeons received diplomas after having completed a nine month course. The new flight surgeons are:

Lieut. (jg) William F. Bennett Jr.....Columbus, Ga.
Lieut. Sidney D. Bond Jr.....Crawfordsville, Ark.
Lieut. (jg) Calvin J. Curts.....Kansas City, Mo.
Lieut. (jg) Wayne L. Erdbrink.....Cincinnati
Lieut. (jg) John W. Reece.....Birmingham, Ala.
Lieut. (jg) Lee W. Stewart.....West Memphis, Ark.
Lieut. (jg) James I. Thorn.....Vina, Ala.

NOMINATED FOR POSTGRADUATE INSTRUCTION

The following medical officers have been nominated for courses in postgraduate instruction: Comdr. Edward T. Byrne, to a fellowship in radiology at the Washington University School of Medicine, St. Louis; Comdr. William F. MacKoske, to a residency in general surgery at the Naval Hospital, San Diego, Calif.; Lieut. (jg) Thomas J. Coleman, to a residency in surgery at the Naval Hospital, Philadelphia; Lieut. (jg) Leo J. Frank Jr., to a residency in obstetrics and gynecology at the Naval Hospital, Oakland, Calif.; Lieut. Comdr. Jack C. McCurdy, to a residency in surgery at the Naval Hospital, Oakland, Calif.; Lieut. Alan Raftery, to a fellowship in pathology at the Henry Ford Hospital, Detroit; Lieut. (jg) Newman A. Hoopingarner, to a fellowship in children's orthopedics at St. Charles Hospital, Brooklyn; Lieut. Robert J. McCarthy, to a residency in internal medicine at the Naval Hospital, Bethesda, Md. Comdr. Ross P. Black of Amarillo, Texas, to a residency in urology at the Naval Hospital, Long Beach, Calif.; Comdr. Charles S. Hascall Jr., Baldwin, N. Y., to a residency in surgery at the Naval Hospital, Chelsea, Mass., and Lieut. (jg) Donald E. Lloyd, Emporia, Kan., to a residency in psychiatry at the Naval Hospital, Bethesda, Md.

FIRST ACTIVE DUTY

The following lieutenants (jg) in the Reserve Medical Corps have been nominated for their first active duty: David E. Brown, Sacramento, Calif.; Kenneth D. Gaver, Santa Barbara, Calif.; Billy N. Golden, Hattiesburg, Miss.; John W. Lauder, Temple City, Calif.; John R. Marks, Madison, Wis.; Louis B. Matthews Jr., Franklin, Ind.; Roger P. Mattson, McVille, N. D.; John A. Moore, Hampden-Sydney, Va., and Thomas C. Puchner, Wauwatosa, Wis.; Alan A. Basinger, Hayden, Colo.; William E. Bellamy Jr., Scotland Neck, N. C.; Henry J. Fowler, Walnut Cove, N. C.; Milton M. Lownes Jr., Philadelphia, and Warren L. Niccum, Muncie, Ind.; Samuel E. Feinman, Jersey City, N. J.; Quentin L. Green of Houston, Texas; Matthew Rosenschein Jr. of New York, and Carson E. Taylor of St. Louis; Arthur P. Kaupe, Neptune, N. J., and John W. Wilson Jr., Chattanooga, Tenn.

PERSONALS

The following reserve officers have been nominated for extended active duty: Lieut. (jg) Bruce A. Elrod, Birmingham, Ala.; Lieut. (jg) Frank J. Haufe, Middle Village, Long Island, N. Y.; Lieut. (jg) Daniel M. O'Toole, Los Angeles, and Lieut. (jg) Paul Pipik of Cleveland Heights, Ohio.

Comdr. Thomas A. Harris, M.C., recently addressed the Fairfax County Mental Hygiene Society, Falls Church, Va., on the clinical structure and community role of a child consultative clinic.

Lieut. (jg) David M. Spencer, Troy, Ohio, has been nominated for voluntary recall to active duty in the Medical Corps Reserve.

VETERANS ADMINISTRATION

THE 128TH VETERANS HOSPITAL OPENED

The Veterans Administration in May opened its one hundred and twenty-eighth hospital, at Grand Junction, Colorado.

The new six story 152 bed general medical and surgical hospital admitted its first patients two years and three months after ground was broken on the 40 acre site near the center of town.

The hospital contains some of the most up-to-date equipment designed for the well-being of both patients and staff members. Included is a suite of operating rooms adaptable to any major surgical procedure. The hospital also is equipped with small kitchens on each ward so that patients may get nourishment between meals, bedside radios giving patients their choice of three stations, "telecarts" enabling patients to make telephone calls from their beds, a complete dental clinic and special services facilities such as recreation hall, library and chapel.

Among the hospital's officials are Dr. John D. Shea, acting chief of professional services; Dr. James K. McClintock, chief of surgical service; Dr. Geno Saccomanno, chief of the clinical laboratory, and Mr. C. I. Lemoine, chief pharmacist.

At the dedication ceremonies, April 27, addresses were delivered by Carl R. Gray Jr., Administrator of Veterans Affairs; Governor W. Lee Knous of Colorado, and Mayor John Harper of Grand Junction.

MERGE TWO MINNESOTA OFFICES

Veterans Administrator Carl R. Gray Jr. has directed consolidation of the Minneapolis Veterans Administration Regional Office with the Fort Snelling District Office into a new combined office. The merged offices will occupy space at Fort Snelling. The move is expected to improve service to veterans of the Twin Cities area by permitting more efficient utilization of personnel. The move to Fort Snelling will not delay processing of veterans' benefit claims and examinations. Effective date for completion of the moving is tentatively set for mid-April.

PERSONALS

Dr. W. Ivan King has been appointed to the staff of the Veterans Hospital at St. Petersburg, Fla. Dr. King, a graduate of Rush Medical College, Chicago, and a veteran of World War II, will become director of admissions at the hospital.

Dr. Thomas J. Hardgrove, formerly chief of professional services, Veterans Administration center, Waco, Texas, became manager of the Veterans Hospital at American Lake, Washington, May 1. Dr. Hardgrove has been with the Veterans Administration since 1935. He is a specialist certified by the American Board of Psychiatry and Neurology and formerly was in private practice in Milwaukee.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CONNECTICUT

Fifty Year Service Pins.—The Connecticut State Medical Society honored 26 fifty year members at a special ceremony during the society's annual dinner May 5 in New Britain. Dr. Samuel C. Harvey, New Haven, presented the service pins. The occasion marked the first time the society has extended formal recognition to its earliest living members. Among the twenty-six physicians is Dr. John C. Lynch, Bridgeport, who has been a member of the state medical society for sixty-two years. Dr. Charles J. Foote, New Haven, having joined the society in 1888, is second oldest, and third is Dr. William L. Higgins, South Coventry, who became a member in 1891.

Expand Facilities of Yale Plan Clinic.—Connecticut's facilities for the care and study of alcoholism were recently expanded with the opening of a state-supported outpatient clinic in New Haven and reorganization of the Yale Plan Clinic. Along with the transfer of headquarters and establishment of the new clinic by the Connecticut Commission on Alcoholism at 412 Orange Street, the Yale Plan Clinic has moved from 432 Temple Street to the Yale Laboratory of Applied Physiology. Since 1944 the Yale clinic has provided services for the treatment of alcohol addiction for persons in all sections of the country. While the reorganization program calls for the continuation of these services, they will be limited, and for the first time fees will be charged in accordance with the economic status of the patient. The clinic will continue to function as a consultant to industry and community agencies on problems of alcoholism, and will conduct research to correlate clinical experience and the work of the Yale Laboratory of Applied Physiology. Mr. Raymond G. McCarthy, executive director of the clinic, explains that the Yale clinic need no longer operate as a community service facility, since the Connecticut Commission on Alcoholism is operating a local clinic.

The new state outpatient clinic is organized to render services to alcoholic addicts in New Haven County without charge. Dr. Giorgio Lolli, associate professor of applied physiology at Yale and medical director of the university clinic, will direct the treatment program of the commission's local clinic. Similar clinics have been established in Bridgeport, Hartford, Stamford, the State Veterans Hospital at Rocky Hill and the State Farm for Women at Niantic.

IDAHO

State Medical Meeting.—The Idaho State Medical Association will hold its annual meeting June 19-22 in Sun Valley. Guest speakers include:

William D. Stroud, Philadelphia, Congenital Heart Disease.
E. W. Alton Ochsner, New Orleans, Carcinoma of the Lung.
William Boyd, Toronto, Canada, Structural Basis of Nephritis.
Rea E. Ashley, San Francisco, Allergy of Upper Respiratory Tract and Allergic Management.
Alexis F. Hartmann, St. Louis, Fundamentals of Carbohydrate Metabolism and Their Clinical Application.
Howard C. Stearns, Portland, Ore., Recognition and Treatment of Ovarian Carcinoma.

The annual banquet will be held Tuesday evening at the Lodge.

ILLINOIS

Dr. Cross Reappointed State Health Officer.—Dr. Roland R. Cross has been reappointed as state director of health, a post he has held since 1940. He has been employed by the health department since 1933, was promoted to assistant director in January 1940 and became director the following October. Before joining the state department, Dr. Cross had been in government and army service.

Army Deeds Hospital to State.—Mayo General Hospital at Galesburg, a World War II Army institution, was deeded to the Illinois Department of Welfare May 31 through the War Assets Administration. The hospital will be ready to care for aged and mental patients late in September. The hospital, built at a reported cost of $5,000,000 with accommodations for 2,000 patients and personnel, opened in 1944 and was closed in October 1946.

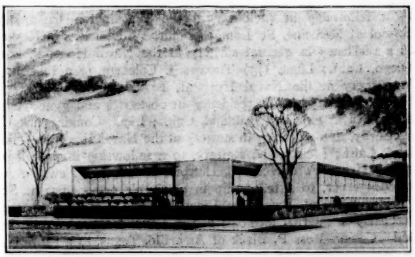
Chicago

Renew Rothschild Grant to Institute.—The Hektoen Institute for Medical Research of the Cook County Hospital has received a second grant of $2,000 from the Mildred Rothschild Memorial Foundation for the continued study of pemphigus disease in the departments of bacteriology and virology.

Discussion of School Health Services.—The health division of the Welfare Council of Metropolitan Chicago will hold its annual meeting June 14 at 12 noon at the Standard Club. Dr. George M. Wheatley of the Metropolitan Life Insurance Co., New York City, will speak on "Health Services for the School Child."

Memorial Fund for Diabetic Children.—Friends of the late Helen C. Baker, *Chicago Daily News* columnist, have started a memorial fund for diabetic children with contributions totalling $1,020. The funds will be administered by the Chicago Diabetes Association, of which Dr. Arthur R. Colwell is president. Mrs. Baker was publicity secretary for the Chicago Council of Social Agencies, and her weekly columns related to social work.

Institution for Tuberculosis Research.—Ground was broken May 20 for the Institution of Tuberculosis Research, to be erected by the State Department of Public Health at the cost of about $550,000, in the Medical Center District on Chicago's near West Side. The institution will supply BCG vaccine to health agencies in the United States and abroad. Research will be directed toward improvement of the vaccine and tuberculosis prevention. Another objective of the new unit will be to instruct health officers in the use of BCG. The



Architect's drawing of Institution of Tuberculosis Research

institution will be operated jointly by the University of Illinois, the Research Foundation and the Municipal Tuberculosis Sanitorium. Speakers included Gov. Adlai Stevenson, Mayor Martin F. Kennelly, Dr. Walter H. Theobald, president of the Medical Center Commission; Dr. Roland R. Cross, director of the State Department of Public Health; Dr. Ernest E. Irons, president of the board of directors of the Municipal Tuberculosis Sanitorium; Mr. Herbert R. DeYoung, president of the Tuberculosis Institute of Chicago and Cook County; Park Livingston, president of the board of directors of the Research Foundation, and Dr. Andrew C. Ivy, vice president of the University of Illinois. The Research Foundation, a recently established nonprofit organization, is coordinating the BCG activities of the various agencies which will be housed in the new building.

Hospital Affiliates with Loyola.—Loretto Hospital, 645 South Central Avenue, has become affiliated with the Stritch School of Medicine of Loyola University, the second important step in forming a new Loyola University Hospital Group. Last fall the University Hospital, 432 South Wolcott Avenue, was made available to the school as a teaching and research unit. The educational program at Loretto for training young physicians will be broadened and will be integrated by Loyola's clinical dean, Dr. Charles J. Thill. The eight story, 125 bed hospital, which overlooks Columbus Park, was built in 1923 as Austin Hospital, in 1929 became Frances E. Willard Hospital and was renamed Loretto Hospital in 1938. Surgical and obstetric facilities are being enlarged, and new operating rooms for neurosurgery and bone surgery have been added. Nursery facilities also are being altered and improved. A new 29 bed psychiatric unit was established in 1947 under the direction of Dr. John J. Madden, chairman of the department of neuropsychiatry at the medical school. The division of obstetrics and gynecology will be under the direction of Dr. George Z. Wickster. A general practice division of the hospital

staff will be maintained and will be unique in that these patients, as well as those admitted for specialized conditions, will be specially studied and incorporated in the teaching program. A research porgram will be carried on under the joint auspices of the hospital and the university.

LOUISIANA

History of Medicine Society Awards.—Student awards of the History of Medicine Society of Tulane University, New Orleans, were presented at the annual banquet May 12. The I. I. Lehmann Award for the best student discussion was presented to Mr. Isadore Yager for his paper "The History of Diabetes Mellitus." The Rudolph Matas Award for the best paper was given to Mr. Bruce Sullivan for "Medicine of the American Indians." The B. Bernard Weinstein Award for the paper showing the greatest amount of original research was presented to Miss Jeanne Marcoux for her paper "Women in New Orleans Medicine." The guest speaker was Emmett B. Carmichael, Ph.D., professor of biochemistry at the University of Alabama College of Medicine, who spoke on "Josiah Nott."

MARYLAND

Osler Anniversary Meeting.—The Johns Hopkins Medical History Club observed the hundredth anniversary of the birth of William Osler at its meeting May 19 in Johns Hopkins Hospital, Baltimore. Speakers were:

Alan M. Chesney, Baltimore, Osler's Attitude Toward Full-Time Clinical Chairs.
Eugene L. Opie, New York, Osler as a Pathologist.
Joseph H. Pratt, Boston, Osler as a Clinical Teacher.

MASSACHUSETTS

Course in Gastrointestinal Surgery.—The National Gastroenterological Association, in cooperation with Tufts College Medical School and the First and Second Surgical Services of the Boston City Hospital, will present a course in gastrointestinal surgery at the hospital October 27-29, under the personal direction of Dr. Owen H. Wangensteen, professor of surgery, University of Minnesota Medical School, assisted by Lord Alfred Webb-Johnson, president of the Royal College of Surgeons, London, England, and members of the surgical staff of the hospital. Enrolment is limited to 250. The fee will be $35 a person. Veterans may take this course under the G.I. Bill of Rights. For information write to the National Gastroenterological Association, Dept. GSJ, 1819 Broadway, New York 23.

MINNESOTA

Dr. Matson Named Blood Bank Director.—G. Albin Matson, Ph.D., director of the centralized blood banking system for the Salt Lake City area, became director of the Minneapolis War Memorial Blood Bank May 1. He received his Ph.D. degree at Washington University, St. Louis, was associate professor of bacteriology at the Montana State University, Missoula, and from 1937 to 1948 was assistant professor and then associate professor of bacteriology at the University of Utah in Salt Lake City. The Minneapolis War Memorial Blood Bank is the result of the combined efforts of the Hennepin County Medical Society and the Junior Chamber of Commerce. The majority of hospitals in the county are now serviced with blood from the central blood bank, and it is hoped that the remaining few in the area will now avail themselves of the facilities of the community service.

NEBRASKA

Fifty-Year Practitioners.—At a staff dinner of the Lincoln General Hospital, Lincoln, Drs. H. Winnett Orr and Irvin C. Munger, emeritus staff members, were honored recently on the completion of their fiftieth year of practice. Both physicians have served the hospital since it opened in 1923. Dr. Munger, a surgeon, is a graduate of the Illinois Medical College, Chicago, 1900. Dr. Orr, a graduate of the University of Michigan Department of Medicine and Surgery, Ann Arbor, 1899, has practiced in Lincoln since 1899 and is a former president of the American Orthopaedic Association.

NEW YORK

Dr. Whipple Receives Kaiser Medal.—Dr. George H. Whipple, dean of the University of Rochester School of Medicine and Dentistry, is the 1949 recipient of the Albert David Kaiser Medal of the Rochester Academy of Medicine for "his distinguished services to medical science and the distinction he has brought to the city through the development of the University of Rochester School of Medicine and Dentistry." Dr. Whipple, a graduate of Johns Hopkins University School of Medicine, Baltimore, 1905, came to the University of Rochester in 1921 as dean of the newly founded school of medicine and dentistry. Previously he was dean of the University of California Medical School, Berkeley–San Francisco. Dr. Whipple was a co-winner of the Nobel Prize in medicine in 1934 for his research on anemia.

Postgraduate Instruction.—Otsego County Medical Society will hear Dr. Milton L. Kramer, New York City, speak on "Management of the Failing Heart" at a meeting at the Sportsman Tavern, Fly Creek, June 15 at 8 p. m. This lecture has been arranged by the Medical Society of the State of New York in cooperation with the New York State Department of Health.

Hospital Expands Maternity Care.—Ellis Hospital in Schenectady has adopted a new program to contribute toward better prenatal maternity care in Schenectady County. Any maternity patient who anticipates being delivered at the hospital may be sent there by her physician at any time early in pregnancy to have a roentgen examination of the chest and a blood determination for the Rh factor. The hospital is extending these services without charge in the interest of improved obstetric practice.

New York City

Dr. Reiss to Lecture in Berlin.—Dr. Frederick Reiss, associate clinical professor of dermatology and syphilology, New York University–Bellevue Medical Center, has been invited by the U. S. Military Government, at the request of the Free University of Berlin, to lecture on Recent Advances in Dermatology and Mycology. The lectures will be given during July at the university. Dr. Reiss will be in Europe about two months.

Appointed Post-Graduate Dean.—Dr. Robert Boggs will become dean of the New York University Post-Graduate Medical School, New York University–Bellevue Medical Center July 1. He has been acting dean of the school since its formation by the consolidation of the former New York Post-Graduate Medical School with New York University. Dr. Boggs came to New York University after five years in the U. S. Navy. A graduate of the McGill University Faculty of Medicine, Montreal, Canada, 1933, Dr. Boggs was a research fellow in surgery at the Harvard Medical School and trained at the Peter Bent Brigham Hospital of Boston and was on the house staff of New York Hospital.

Dr. Von Storch Goes to New York.—Dr. Theodore J. C. von Storch, professor of neurology at Albany (N. Y.) Medical College, has been appointed chief of the Division of Neuropsychiatry of Montefiore Hospital, New York, effective July 1. Dr. von Storch is a graduate of Johns Hopkins University School of Medicine, Baltimore, 1931, and did most of his graduate work in neurology at the Harvard Medical School, Boston. He served with the Medical Corps of the United States Army throughout World War II. He succeeds Dr. H. Houston Merritt, who has been appointed professor of neurology in Columbia University College of Physicians and Surgeons, New York, and consultant in neuropsychiatry to the hospital.

NORTH CAROLINA

Open Blood Center.—The American Red Cross Regional Blood Center at Asheville was opened April 25. Dr. Ross T. McIntire, director of the Red Cross Blood Program, was the principal speaker.

Grants for Research.—The Bowman Gray School of Medicine, Winston-Salem, recently received grants of $51,802 from the U. S. Public Health Service and the John and Mary Markle Foundation. Postdoctoral fellowships granted by the Atomic Energy Commission have been renewed for another year to Dr. Kingsley M. Stevens and Dr. Jerry K. Aikawa, both of whom are doing research with radioisotopes in the department of medicine of the Bowman Gray School of Medicine. Dr. Stevens is studying the synthesis of protein by bacteria, and Dr. Aikawa's research is concerned with the alteration in the distribution of body fluids in infectious diseases.

Appropriation for Hospitals.—The legislature of North Carolina at its 1949 session appropriated $214,576 for general administration operating expenses for the biennium July 1, 1949 to June 30, 1951. This is an increase over the previous biennium appropriation of $123,040. For permanent improvements in local hospitals and health centers, the legislature appropriated $6,826,972, an increase of nearly $577,000 over the previous biennium appropriation. To state-owned hospitals for permanent improvements including $1,000,000 for building equipment for the dental school, the legislature made an appropriation of $32,744,251, an increase of more than $17,000,000 over the previous biennium. The sum includes $533,645 of federal funds devoted to state-owned hospitals.

SOUTH CAROLINA

State Medical Election.—The South Carolina Medical Association at its recent annual meeting installed Dr. Robert B. Durham, Columbia, as president and selected Drs. Rosco D. McMillan of Red Springs as president elect and M. D. Hill of Raleigh, secretary-treasurer.

TENNESSEE

State Medical Election.—The Tennessee State Medical Association recently installed Dr. Nathaniel S. Shofner, Nashville, as president and chose Dr. Ralph H. Monger, Knoxville, as president elect. Dr. William M. Hardy, Nashville, was reelected secretary-editor of the association.

Appoint Assistant Dean.—Dr. Frank L. Roberts, professor of preventive medicine, has been given additional duties as assistant dean of the University of Tennessee College of Medicine, Memphis, effective July 1. He succeeds Dr. Robert H. Miller, who is retiring from the university. Dr. Roberts has been on the faculty of the university since 1937. He is a graduate of the University of Minnesota Medical School, Minneapolis, 1918, and holds a D.P.H. degree from Johns Hopkins University School of Medicine, Baltimore. Dr. Miller joined the university faculty in 1924 as an assistant professor of anatomy and was made assistant dean in 1939.

TEXAS

Reestablish Memorial Research Laboratory.—The Sealy and Smith Foundation for the John Sealy Hospital, Galveston, has reestablished the Memorial Research Laboratory in association with the hospital. This laboratory was originally developed by the late Meyer Bodansky, Ph.D., and closed at his death in 1941; it is designed to investigate the application of current biochemical and physiologic knowledge to the management of disease. Dr. Raymond L. Gregory, professor of internal medicine at the University of Texas Medical Branch, Galveston, will be director of the laboratory.

University Appointments.—Dr. Clarence S. Livingood, professor of dermatology and syphilology at Jefferson Medical College of Philadelphia, has accepted appointment as professor of dermatology and syphilology and chairman of the department at the University of Texas Medical Branch, Galveston. Dr. Elwood E. Baird, professor of clinical pathology at the University of Colorado School of Medicine, Denver, has accepted appointment as professor of clinical pathology. Dr. Baird, a graduate of Northwestern University Medical School, 1935, will have charge of the clinical laboratories at the University of Texas Medical Branch Hospital.

WEST VIRGINIA

Report on Premature Nursery.—During the first year of operation of the nursery for premature infants set up in Kanawha County as a demonstration project by the state department of health a total of 123 premature infants were given care. The nursery, which was opened Feb. 16, 1948, is located at the Herbert J. Thomas Memorial Hospital in South Charleston. Eighty-one or 66 per cent of the infants survived. This compares favorably with records of other centers for premature infants throughout the nation. In an effort to determine accurately the relationship between malnutrition and premature birth a dietary study of mothers of premature infants has been instituted by the chief nutritionist of the division of maternal and child health. This study is patterned after Harvard's Burke-Stewart research. The professional staff of the nursery includes the following pediatricians practicing in Kanawha County: Drs. Henrietta B. Marquis, Arthur A. Shawkey, Helen M. Belknap, Lloyd Cox, Harry Baldock, Jack Basman and Mary Gallagher.

Diagnostic Clinic for Children.—A children's diagnostic clinic, a cooperative project of the state department of health, the Kanawha-Charleston Health Department, the Kanawha County School System and local pediatricians, was opened in March at the City Building in Charleston. Clinics will be held the first and third Wednesday afternoon in each month. Referral will be made by private physicians, well-child conferences in the Kanawha Valley, school physicians and nurses, welfare clinics, and the general medical clinics in the county-city health department. Each child referred will be given a thorough physical examination for the purpose of diagnosis, and a report of the findings will be sent to the family doctor. A limited fund has been allocated by the Children's Bureau, through the Division of Maternal and Child Health, for hospitalization and treatment of the more deserving cases when the family is unable to assume this responsibility. The staff will be composed of local pediatricians who will rotate their services, clinical nurses at the county-city health department, the state nutritionist and the state medical social worker. The clinic is the first of its kind in the state and was established as a demonstration project.

WISCONSIN

Testimonial to Dr. Marshall.—Dr. Victor F. Marshall, who has practiced medicine in Appleton for fifty years, was honored at a testimonial dinner May 12. Speakers at the dinner attended by about 150 persons included Dr. Ernest E. Irons, Chicago, then President-Elect of the American Medical Association, and Dr. Karl H. Doege, Marshfield, president of the State Medical Society of Wisconsin.

Chippewa River Basin Cleanup.—The State Committee on Water Pollution has ordered eight cities, two villages and seven industrial plants located in the Chippewa river basin to install sewage and waste treatment facilities to end gross pollution of the Chippewa and its tributaries. Studies of river samples collected by the Bureau of Sanitary Engineering during the past four years and a public hearing preceded the action. The municipalities were ordered to treat their sewage before discharging it into streams and gave deadlines for the completion of the projects step by step. All construction facilities are to be completed by Dec. 31, 1950.

GENERAL

French Welcome U. S. Doctors.—Last summer the French Medical Association founded the French Welcome Organization for the World Medical Corps. According to Dr. Valentin Charry, director of the corresponding center in Paris, the purpose of the organization is to welcome and help doctors from every country, in any field of interest to them. American doctors planning to visit France this summer are invited to obtain letters of introduction from the American Medical Association, and then communicate with the French organization. The address is 60 Boulevard de Latour-Maubourg, Paris VIIe. The organization expects to have offices in Chicago, New York and San Francisco.

Evarts Graham Receives Chest Physicians Medal.—Dr. Evarts A. Graham, St. Louis, who performed the first successful operation for cancer of the lung, was awarded the gold medal of the American College of Chest Physicians at a dinner at the Ambassador Hotel, Atlantic City, June 4. Dr. Graham is professor of surgery at the Washington University School of Medicine. It was in 1933 that he performed the operation of removing an entire lung for cancer. The patient, fifteen years later, is still alive and active. Since then similar operations have been performed with good results by surgeons in other countries. The gold medal award was presented to Dr. Graham by Dr. Jay A. Myers, professor of preventive medicine and public health at the University of Minnesota, a previous recipient of this award.

Library Association Scholarship.—The first Medical Library Association scholarships have been assigned to three foreign medical librarians from funds granted by the Rockefeller Foundation. The recipients are Miss Lydia Pazos Pérez, assistant to the director of the library of the Faculty of Medicine, University of Havana; Miss Maria Alica Izquierdo Guzman, assistant of the Library of the Faculty of Medicine, University of Chile, and Mrs. Maria José Lessa da Fonseca, librarian of the Faculty of Medicine, University of São Paulo. A program planned to meet the individual interests of each fellow has been arranged to emphasize one or more of the following specialties: cataloging, classification and subject headings for medical literature, administrative methods of medical librarians, special service problems in medical libraries and medical bibliographic sources.

Demonstration Program in Pediatric Teaching.—The American Academy of Pediatrics and its state chairmen are working out a demonstration program with district medical schools and community hospitals. This program, involving decentralized teaching and pediatric services, is based at the medical teaching centers in Philadelphia and will emanate throughout Pennsylvania and into parts of New Jersey and Delaware. Dr. Glidden L. Brooks, Lewiston, Maine, has been appointed associate director of the academy's Committee for the Improvement of Child Health, Philadelphia. Dr. Brooks has been executive director and chief of pediatrics of the Central Maine General Hospital, Lewiston. He will aid in developing the action program for the nationwide improvement of child health based on the three year study of child health services just completed by the academy with the cooperation of the U. S. Public Health Service and the Children's Bureau. He

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will work with Dr. John P. Hubbard, executive director of the committee, and Dr. Philip S. Barba, Philadelphia, academy district chairman for Pennsylvania, New Jersey and Delaware.

National Foundation Fellowship Awards.—The National Foundation for Infantile Paralysis has awarded twenty-one postgraduate fellowships to physicians in the fields of research, physical medicine and public health. Seven other physicians have been approved for fellowships in the same fields to be awarded later in the year. The latest awards total an estimated $80,594 for training, which in some cases will require three years' work. National Foundation fellowships in physical medicine are made to physicians who wish to prepare for eligibility for certification by the American Board of Physical Medicine. Fellows must agree to practice as specialists in physical medicine for a minimum of two years following their training. Fellowships in public health are awarded to physicians who undertake studies leading to Master of Public Health degrees. They must agree to work as public health officers for at least two years following the study.

Squibb Research Appointments.—In a general regrouping of Squibb research responsibilities, the appointments of Dr. Geoffrey W. Rake, Millstone, N. J., as medical director and of Asger F. Langlykke, Ph.D., as director of the Research and Development Laboratories, New Brunswick, have been announced. Activities will be coordinated and directed by Mr. Roland J. Dahl, New York, vice president. Dr. Langlykke received his Ph.D. degree from the University of Wisconsin, Madison, in 1936. He will have two associate directors, Frederick Y. Wiselogle, Sc.D., to be in charge of chemical research, and Tillman D. Gerlough, to be in charge of the biologic research. Dr. Rake has also been appointed recently as director of the Squibb Institute for Medical Research. He will supervise Squibb fellowships and grants, publication of papers in scientific journals, the conduct of seminars, and the Squibb libraries. He succeeds Dr. James A. Shannon, New York, who has been appointed associate director of the National Heart Institute, Bethesda, Md., where he will be engaged not only in administrative work but also in original investigations.

Medical Film Service.—Medical Film Institute, a central clearing house for medical films, was opened April 27 at the Academy of Medicine Building, New York, under the auspices of the Audio-Visual Committee of the Association of American Medical Colleges. Dr. Walter A. Bloedorn, dean of the George Washington University School of Medicine, Washington, D. C., is chairman of the committee. Dr. David S. Ruhe will be director. The institute is now selecting for the State Department a group of medical films for showing abroad. It is also serving as a supervisory agency in cooperation with the National Department of Health and Welfare of Canada in making a film showing medical research's attack on cancer. In addition to Dr. Bloedorn the committee includes Francis Keppel, dean of Harvard's Graduate School of Education; Captain Robert V. Schultz, M.C., U.S.N., Washington, D. C., chief of the Bureau of Medicine's Audio-Visual Training Section and chairman of the Inter-Departmental Committee on Medical Training Aids; Orville Goldner, former head of Navy Training Films, Washington, D. C., and Dr. William L. Benedict, Rochester, Minn., chairman of the American Medical Association's Committee on Medical Motion Pictures.

International Society for Internal Medicine.—This society will hold its second meeting in Paris in the spring of 1950. The organization was founded as a result of the efforts of a group of Swedish and Swiss physicians with the approval and assistance of UNESCO. An organization meeting held in Basel, Switzerland, in September 1948 was attended by physicians from sixteen countries. Many of the founders' group, nearly all of whom are teachers of medicine in their respective countries, have traveled or studied in the United States. The organization is a member of the Association of International Medical Congresses, which met under the auspices of the World Health Organization and UNESCO in Brussels in April. The purpose of the society is "to contribute to the development of scientific knowledge and education in internal medicine and to promote personal relationship between internists in all countries."

Membership is restricted to qualified internists who have been accepted as members of the national associations of internal medicine in their several countries. Dues are nominal (10 Swiss francs per annum). Plans for the Paris congress are proceeding under the direction of Prof. A. Gigon of Basel, president of the society, Dr. Nanna Svartz of Stockholm and Dr. L. Justin-Besancon of Paris. American, Canadian and Latin-American physicians who may be interested in membership may direct their inquiries to Dr. Albert M. Snell, 102-110 Second Avenue Southwest, Rochester, Minn.

Committee on Abstracting.—The Interim Co-Ordinating Committee on Medical and Biological Abstracting Services met at Unesco House June 1-4. The committee, created last year under the auspices of UNESCO, is organizing a system of cooperation among existing services to assure that medical and biologic abstracts cover the whole of the literature in this field. Certain agencies have been requested to give up medical fields already covered by others; a comprehensive system of exchanges has made it possible for each agency to profit from work done elsewhere. Agencies now represented in the committee are: *The British Medical Journal* (London); the Medical Library Association (United States); The Abstracts of World Medicine (London); the Biological Abstracts (Philadelphia); The British Abstracts (London), and the Excerpta Medica (Amsterdam). Other agencies have been invited to join the committee, such as the Bureau of Hygiene and Tropical Diseases, the Commonwealth Bureau of Animal Nutrition, the American Medical Association, the International Abstracts of Surgery, Chemical Abstracts, French Medical Abstracting Services and French Biological Abstracting Services. The World Health Organization and Food and Agriculture Organization were to be represented at the conference, along with the International Federation of Documentation and the International Federation of Library Associations. Among the observers were Dr. Lépine, Institut Pasteur, and Dr. Talice, professor of the Faculty of Medicine at Montevideo, for the Latin American countries.

Nutrition Awards.—At the annual dinner of the American Institute of Nutrition held in the Book-Cadillac Hotel, Detroit, April 20, the following awards were made:

The Mead Johnson and Company Award for work in the field of the B-complex vitamins was divided equally between two recipients, Karl A. Folkers, Ph.D., Research Development Division, Merck and Company, Inc., Rahway, N. J., and Mary S. Shorb, department of poultry husbandry, University of Maryland, Baltimore. The award was granted to Dr. Folkers for "isolating in crystalline form a new chemical substance, designated as vitamin B_{12}, that is active in the treatment of pernicious anemia and of importance in other phases of nutrition," and to Dr. Shorb for "pointing out the possible connection between the antianemia factor and a growth factor for bacteria and for developing a bacteriological assay procedure that materially assisted in the isolation of the compound designated as vitamin B_{12}."

The Borden Award in Nutrition was presented to Harry J. Deuel Jr., Ph.D., University of Southern California School of Medicine, Los Angeles, for "research emphasizing the nutritive importance of components of dairy products."

The Osborne and Mendel Award, conferred in recognition of outstanding achievement in the general field of exploratory research in the science of nutrition, was presented to William C. Rose, Ph.D., professor of biochemistry, University of Illinois, Urbana, for "his contributions to our knowledge of nitrogen metabolism and the amino acid requirements of experimental animals and man."

The institute elected the following officers for the year beginning July 1: Charles G. King, Ph.D., New York, president; Joseph H. Roe, Ph.D., Washington, D. C., secretary, and Ned R. Ellis, M.S., Washington, D. C., treasurer.

Marriages

ROBERT BRYANT WALKER, Gunnison, Colo., to Miss Ruth M. Dunbar of Perrysburg, Ohio, in Toledo, Ohio, April 22.

MOSES EDWARD RICE JR., Aulander, N. C., to Miss Matilde A. McLaughlin of Medford, Mass., Sept. 5, 1948.

LAWRENCE THOMAS SMYTH, Allentown, Pa., to Miss Kathryne Elizabeth McKeown of Narberth, May 7.

JACK WILLIAMS SHIELDS, San Francisco, to Miss Patricia Elizabeth Gaw of Berkeley, Calif., in May.

WILLIAM HUGH GREY, Charlotte, N. C., to Miss Elizabeth Gooch Seay in Richmond, Va., May 14.

JOHN LAURENCE FELDMAN, Quincy, Ill., to Miss Mary Alice Harrington at Palmyra, Mo., April 16.

ALAN LOUIS ABRAMS, San Francisco, to Miss Barbara Zelinsky of Hanford, March 27.

JOHN L. SHIVELY to Miss Virginia Lee Carroll, both of Knightstown, Ind., March 6.

LEONARD M. LASSER, Gary, Ind., to Miss Anne Johnson of Wesleyville, Pa., May 1.

EDGAR A. KAHN, Ann Arbor, Mich., to Dr. Rose Parker of Los Angeles, April 24.

Deaths

William Washington Graves ✠ St. Louis; born in La Grange, Ky., Nov. 13, 1865; St. Louis College of Physicians and Surgeons, 1888; professor emeritus of neurology and psychiatry since 1948 at St. Louis University School of Medicine, where he had joined the faculty in 1905, becoming professor of nervous and mental diseases in 1914 and director of the department in 1925, positions which he held until 1948; member of the American Neurological Association, American Psychiatric Association, Central Neuropsychiatric Association and the American Association of Anatomists; chairman, Section on Nervous and Mental Diseases of the American Medical Association, 1913-1914; past president of St. Louis Society for Mental Hygiene and St. Louis Medical Society, which in 1939 awarded the Certificate of Merit and gold medal for scientific accomplishment based on his classification of scapulae and other inherited characters; fellow of the American College of Physicians; at one time associated with the U. S. Public Health Service; at various times affiliated with the Frisco Hospital, St. Louis Maternity Hospital, St. Mary's Infirmary, St. Louis City Hospital, Alexian Brothers Hospital, St. John's Hospital, St. Anthony's Hospital and St. Mary's Group of Hospitals; died in St. John's Hospital April 19, aged 83.

Randolph West ✠ New York; born in Princeton, N. J., Aug. 7, 1890; Columbia University College of Physicians and Surgeons, New York, 1917; professor of medicine at his alma mater; specialist certified by the American Board of Internal Medicine; member of the Association of American Physicians, American Society for Clinical Investigation, New York Academy of Medicine, Interurban Clinical Club, Society of Biological Chemists, the Society for Experimental Biology and Medicine, Harvey Society and the American College of Physicians; served during World War I; affiliated with Presbyterian Hospital of the Columbia-Presbyterian Medical Center; presented posthumously on June 6 the American Medical Association's first Joseph Goldberger Award in Clinical Nutrition for his research on the clinical use of vitamin B_{12} (THE JOURNAL, February 12, p. 459); formerly editor of the *Journal of Clinical Investigation*; chairman of the U. S. Pharmacopœia Anti-Anemia Preparations Advisory Board; died May 20, aged 58.

James Richard Tillotson ✠ Lima, Ohio; born in Dunbarton, Ohio, Nov. 26, 1877; Medical College of Ohio, Cincinnati, 1904; specialist certified by the American Board of Orthopaedic Surgery; member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; past president of the Allen County Academy of Medicine; served during World War I; affiliated with the Wilson Memorial Hospital in Sidney; on the staffs of St. Rita's Hospital and the Lima Memorial Hospital, where he died April 20, aged 71, of coronary thrombosis.

Anson Holden Bingham ✠ New York; New York Homeopathic Medical College and Hospital, New York, 1900; professor and director of the department of orthopedic surgery at his alma mater, now known as the New York Medical College, Flower and Fifth Avenue Hospitals; specialist certified by the American Board of Orthopaedic Surgery; fellow of the American College of Surgeons; affiliated with Goshen (N. Y.) Hospital, Yonkers (N. Y.) Hospital, Prospect Heights Hospital in Brooklyn, Flower and Fifth Avenue, Metropolitan and Park East hospitals; died April 22, aged 70, of coronary thrombosis.

Augustus Clyde Shipp ✠ Little Rock, Ark.; born in Edenburg, Ind., in 1879; Indiana University School of Medicine, Indianapolis, 1912; an Affiliate Fellow of the American Medical Association; member of the American Trudeau Society; formerly professor of medicine at the University of Arkansas School of Medicine; served as president of the Southern Tuberculosis Conference and honorary president and chairman of the executive board of the Arkansas Tuberculosis Association; a director of the National Tuberculosis Association; died March 22, aged 69, of arteriosclerotic heart disease.

Thomas Pennie Abernathy, Moundville, Ala.; Memphis (Tenn.) Hospital Medical College, 1899; member of the American Medical Association; died March 14, aged 73, of cerebral hemorrhage and hypertension.

Newton Samuel Bacon ✠ Cambridge, Mass.; Harvard Medical School, Boston, 1899; resident physician at the Long Island Hospital in Boston; affiliated with Mount Auburn Hospital; died March 1, aged 76, of heart failure, following an operation.

David E. Bagshaw ✠ Saginaw, Mich.; Saginaw (Mich.) Valley Medical College, 1902; Jefferson Medical College, Philadelphia, 1908; on the staffs of Saginaw General and St. Luke's hospitals; died in Los Angeles March 17, aged 72, of heart disease.

Jay Baird, Coffeyville, Kan.; Eclectic Medical Institute, Cincinnati, 1900; member of the American Medical Association; died March 19, aged 78, of heart disease.

William Halsey Barker ✠ Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1932; assistant professor of medicine at his alma mater, where he was assistant dean; member of the American Clinical and Climatological Association; certified by the National Board of Medical Examiners; member of the staff of Union Memorial Hospital; died in Johns Hopkins Hospital March 26, aged 42, of seminoma of the left testis.

Milton Bodenheimer ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1903; member of the founders group of the American Board of Surgery; fellow of the International College of Surgeons and the American College of Surgeons; served overseas during World War I; for many years affiliated with the Hospital for Joint Diseases and Mount Sinai Hospital; died March 25, aged 69, of coronary thrombosis.

Ramon Haddock Burrell ✠ Creighton, Neb.; University of Michigan Medical School, Ann Arbor, 1900; died March 19, aged 75, of cerebral embolism.

Wesley Paul Damerow ✠ Cincinnati; Rush Medical College, Chicago, 1928; served during World War II; affiliated with Bethesda Hospital; died March 20, aged 48, of coronary occlusion.

Charles William Decker ✠ Pomona, Calif.; University of Southern California College of Medicine, Los Angeles, 1906; an Associate Fellow of the American Medical Association; formerly health officer of Los Angeles; served in France during World War I; died in March, aged 72.

Harry Harding Everett ✠ Lincoln, Neb.; Northwestern University Medical School, Chicago, 1900; fellow of the International College of Surgeons and the American College of Surgeons; medical director and vice president of the Woodmen Central Life Insurance Company; on the staff of Lincoln General Hospital and Bryan Memorial Hospital, where he died March 30, aged 73, of bronchiectasis, emphysema and cor pulmonale.

Walter Sherman Garrison ✠ Cedarville, N. J.; Jefferson Medical College of Philadelphia, 1913; on the staff of the Pridgeton (N. J.) Hospital; died March 5, aged 60, of hypertensive vascular disease with coronary occlusion.

Julien Auguste Gehrung, New York; Washington University School of Medicine, St. Louis, 1901; formerly on the faculty of New York Polyclinic Medical School and Hospital; for his services during World War I with the French army was named a chevalier of the Legion of Honor; served on the staffs of the New York Eye and Ear Infirmary, St. Vincent's Hospital and the New York Foundling Hospital; died in Metropolitan Hospital March 25, aged 70.

James Rieser Gerhard, Reading, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1901; member of the American Medical Association; served on the staff of Reading Hospital, where he died March 30, aged 75, of cerebral hemorrhage and arteriosclerosis.

Glenn Ira Goodrich, Dover, Ohio; Ohio Medical University, Columbus, 1903; member of the American Medical Association; past president of the Tuscarawas County Medical Society; affiliated with Union Hospital, where he died March 20, aged 70, of a broken hip received in a fall.

Oscar Edwin Hanscom, Greene, Me.; Medical School of Maine, Portland, 1899; member of the American Medical Association; served on the school board; died March 22, aged 77, of carcinoma of the prostate.

Robert Lee Hardy, Louisville, Ky.; University of Louisville Medical Department, 1904; died March 18, aged 79, of chronic myocarditis.

Clarence Orfield Harned, Tishomingo, Okla.; Hospital College of Medicine, Louisville, Ky., 1897; died in Wesley Hospital, Oklahoma City, March 11, aged 76, of uremia.

Lester Friedrich Harris, Washington, D. C.; George Washington University School of Medicine, Washington, D. C., 1945; served during World War II; certified by the National Board of Medical Examiners; affiliated with the Veterans Administration; died March 23, aged 27, of coronary occlusion.

William Ernest Holland, Chicago; Illinois Medical College, Chicago, 1897; died March 29, aged 82, of intestinal obstruction and pyloric stenosis.

Edward Joseph Horodko, Chicago; Loyola University School of Medicine, Chicago, 1941; member of the American Medical Association; served during World War II and was awarded the Bronze Star Medal for meritorious achievement in connection with military operations against the enemy at New Georgia, Solomon Islands, from July 22 to Sept. 8, 1943; on the staff of St. Elizabeth Hospital, where he died March 27, aged 33, of acute myelogenous leukemia.

Peter Helms Jamison, Nescopeck, Pa.; Medico-Chirurgical College of Philadelphia, 1898; member of the American Medical Association; died in Geisinger Memorial Hospital, Danville, March 22, aged 73, of injuries received in an automobile accident.

Martin Kerpel ✙ Brooklyn; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1922; on the staff of the Lutheran Hospital; died March 15, aged 53, of coronary occlusion.

Shiam Lall, Holdenville, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1923; member of the American Medical Association and the State Medical Association of Texas; died March 7, aged 57.

George Bagnell Landers, Rochester, N. Y.; Tufts College Medical School, Boston, 1905; member of the American College of Hospital Administrators; for many years medical director of the Highland Hospital, where he was hospital consultant and member of the board of directors; formerly superintendent of the Memorial Hospital in Morristown, N. J., and assistant superintendent of the Presbyterian Hospital in New York; died in Jacksonville, Fla., March 23, aged 66, of gastric ulcer.

Arthur Ray Lannon ✙ Denver; University of Colorado School of Medicine, Denver, 1916; member of the American Urological Association; on the honorary staffs of Presbyterian, St. Anthony's and Denver General hospitals; died March 24, aged 59, of coronary occlusion.

Israel Levine, Paterson, N. J.; Baylor University College of Medicine, Dallas, 1904; member of the American Medical Association; affiliated with the Nathan and Miriam Barnert Memorial Hospital; died March 27, aged 70, of embolism.

James Lang Lewis, Danville, Ill.; Northwestern University Medical School, Chicago, 1901; served during World War I; formerly affiliated with Veterans Administration hospitals in Alexandria, La., and Hines, Ill., where he was chief of the tuberculosis service for many years; served on the staff of the Indiana State Sanatorium, Rockville; died March 29, aged 75, of cerebral thrombosis.

Lily Dale Lighter, Montevideo, Minn.; Chicago Physio-Medical Institute, 1886; died recently, aged 90, of uremia and cardiac failure.

Anna Willard Locke-Henry, New York; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897; for many years physician for the board of education; died in Nashua, N. H., February 14, aged 80, of carcinoma.

David L. McCarrell ✙ Hickory, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1899; for many years member of the local school board; on the staff of the Washington (Pa.) Hospital; died March 31, aged 76, of cerebral hemorrhage.

James Herbert McKee, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1892; member of the American Medical Association and the American Academy of Pediatrics; served during World War I; formerly professor of pediatrics at the Woman's Medical College of Pennsylvania, Philadelphia Polyclinic and the Temple University School of Medicine; affiliated with Philadelphia General Hospital and Chestnut Hill Hospital, where he died March 24, aged 77, of coronary thrombosis.

John Drummond Maguire, Lexington, Ky.; Louisville (Ky.) Medical College, 1903; member of the American Medical Association; served during World War I; formerly county health officer; died in Nichols Hospital, Louisville, March 31, aged 72.

Charles Jacob Mark, New York; Long Island College Hospital, Brooklyn, 1906; died March 23, aged 68, of heart disease.

Perry French Marks, Walton, W. Va.; University of Louisville (Ky.) Medical Department, 1907; formerly county commissioner; health officer for Roane County; died in Spencer April 1, aged 69, of carcinoma.

James Frank Mayne, Ashland, Ohio; University of Wooster Medical Department, Cleveland, 1889; Western Pennsylvania Medical College, Pittsburgh, 1897; died in Samaritan Hospital March 26, aged 88, of cerebral hemorrhage and hypertensive heart disease.

Roger Depew Mead ✙ Endicott, N. Y.; Syracuse University College of Medicine, 1908; member of the American Association of Industrial Physicians and Surgeons; for many years a member of the board of education; affiliated with Ideal Hospital; died in St. Petersburg, Fla., March 31, aged 65, of diabetes mellitus.

Carl Henry Metzger, Altoona, Pa.; Jefferson Medical College of Philadelphia, 1908; member of the American Medical Association; served during World War I; formerly police surgeon; city physician; member of the health department and civil service examining board; died March 31, aged 70, of angina pectoris.

James B. Miner Sr., Charles City, Iowa; the Hahnemann Medical College and Hospital, Chicago, 1894; member of the American Medical Association; formerly member and president of the school board; affiliated with Cedar Valley Hospital, where he died March 22, aged 80, of myocardial failure.

Morey David Miro, Detroit; Detroit College of Medicine and Surgery, 1932; member of the American Medical Association; served during World War II; affiliated with Deaconess and Grace hospitals; died in Rochester, Minn., March 30, aged 41, of ulcerative colitis.

Claude Edward Morrison, Bay City, Ore.; Washington University School of Medicine, St. Louis, 1910; died March 3, aged 69, of coronary occlusion.

Frank Wellington Murphy, Los Angeles; Pulte Medical College, Homeopathic, Cincinnati, 1894; served as health officer in Dayton, Ohio; died March 7, aged 78, of adenocarcinoma of the prostate.

Thomas Hayden Nelson, Park Hills, Ky.; Kentucky School of Medicine, Louisville, 1894; served during World War I; on the staff of Booth Memorial Hospital, Covington; died March 11, aged 81, of arteriosclerosis.

Alfred Benjamin Nesler ✙ Dubuque, Iowa; University of Michigan Medical School, Ann Arbor, 1920; fellow of the American College of Surgeons; certified by the National Board of Medical Examiners; on the staffs of Finley, St. Joseph's and Mercy hospitals; died in Laurel Oaks March 25, aged 53, of coronary occlusion.

Harry Sidney Newman ✙ Yonkers, N. Y.; Medical College of Virginia, Richmond, 1925; member of the American College of Chest Physicians and the American Trudeau Society; on the staff of Montefiore Hospital for Chronic Diseases in New York; died in St. James Hospital in Hornell, March 13, aged 50, of coronary occlusion and hiatus hernia.

Edward White Perkins ✙ New York; College of Physicians and Surgeons, medical department of Columbia College, New York, 1889; served on the staffs of the Presbyterian and Sloane hospitals; died in the Eastern Long Island Hospital in Greenport, March 26, aged 83, of arteriosclerosis.

Anna Elizabeth Martin Ralston, Brooklyn; Eclectic Medical College of the City of New York, 1896; member of the American Medical Association; died March 10, aged 73.

Benjamin Franklin Randolph ✙ Arrington, Va.; University College of Medicine, Richmond, 1912; died March 30, aged 72, of coronary thrombosis.

Edwin Thomas Redmond Jr., Farmingdale, N. Y.; New York Medical College, Flower and Fifth Avenue Hospitals, New York, 1943; resident physician at the Nassau County Sanatorium; died in Oyster Bay, March 28, aged 31, of cor pulmonale and pulmonary fibrosis.

Cecil Rigby ✙ Spartanburg, S. C.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1916; instructor in surgery at Johns Hopkins University School of Medicine, Baltimore, from 1916 to 1920; fellow of the American College of Surgeons; served during World War I; on the staff of Spartanburg General Hospital; died March 26, aged 58, of coronary thrombosis.

Mary Bennett Ritter, Berkeley, Calif.; Cooper Medical College, San Francisco, 1886; formerly dean of women and physician at the University of California; in 1935 received the honorary degree of doctor of laws from the University of California; died March 17, aged 89, of chronic myocarditis and arteriosclerosis.

Homer Dudley Roads ✙ Cincinnati; University of Cincinnati College of Medicine, 1923; fellow of the American College of Surgeons; formerly practiced in Cleveland, where he was for many years on the staff of St. John's Hospital; died in Cincinnati General Hospital, March 21, aged 51, of periarteritis nodosa.

John Cornelius Roe ✙ Pittsfield, Mass.; Georgetown University School of Medicine, Washington, D. C., 1915; fellow

of the American College of Surgeons; served during World War I; affiliated with St. Luke's, Hillcrest and House of Mercy hospitals; consulting surgeon, W. B. Plunkett Memorial Hospital in Adams and the Fairview Hospital in Great Barrington; died March 13, aged 59, of coronary thrombosis.

Eva C. Roloson, Delaware, Ohio; Eclectic Medical Institute, Cincinnati, 1890; died March 18, aged 87, of cerebral hemorrhage.

Eugene Rush ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1914; a graduate in pharmacy; member of the American Academy of Pediatrics; served overseas during World War I; on the staff of Mount Sinai Hospital; died in Jewish Hospital February 19, aged 60, of coronary thrombosis.

Martin Joseph D. Ruzicka, Lincoln, Neb.; Marquette University School of Medicine, Milwaukee, 1934; served on the staff of Lincoln (Neb.) State Hospital and the Lincoln (Ill.) State School and Colony; died in March, aged 41.

Reverdy Sasscer, Upper Marlboro, Md.; University of Maryland School of Medicine, Baltimore, 1897; died March 28, aged 74.

Joseph Henry Sayer ✠ Seattle; University of Nebraska College of Medicine, Omaha, 1909; an Associate Fellow of the American Medical Association; served overseas during World War I; member of the board of trustees of Doctors Hospital; for many years affiliated with Columbus Hospital; died March 17, aged 70, of carcinoma of the stomach.

Joseph Scattergood ✠ West Chester, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1894; for many years secretary of the Chester County Medical Society; formerly county medical director; for many years secretary of the Pennsylvania Railroad Surgeons Association; affiliated with Chester County Hospital and Darlington Sanitarium; died March 18, aged 79, of cerebral hemorrhage.

Rene George Schirber ✠ New Brunswick, N. J.; Long Island College of Medicine, Brooklyn, 1935; served during World War I; served in the medical corps, Army of the United States, during World War II and was twice awarded the Bronze Star for bravery in action in the New Guinea and Philippine campaigns; on the staffs of St. Peter's and Middlesex General hospitals; died in New York March 19, aged 49.

Henry Junius Schireson, Philadelphia; notorious as an advertising plastic surgeon; Maryland Medical College, Baltimore, 1906; died March 27, aged 68, of chronic myocarditis.

Frederick William Schultz, Sarasota, Fla.; Milwaukee Medical College, 1903; served during World War I; died March 18, aged 78, of hypertension and cardiac failure.

Edgar Floyd Sewall ✠ Somerville, Mass.; Tufts College Medical School, Boston, 1913; affiliated with the Somerville (Mass.) Hospital, Winchester (Mass.) Hospital and the Symmes Arlington Hospital in Arlington; died March 22, aged 63, of coronary artery disease.

Grace Edgar Spiegle, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1898; for many years taught at the Philadelphia Normal School; died March 16, aged 95, of pneumonia.

John M. Steverson, Moscow, Tenn. (licensed in Tennessee in 1913); died March 7, aged 72, of intestinal obstruction due to carcinoma.

Ralph Lincoln Sweet ✠ Seattle; University of Pennsylvania School of Medicine, Philadelphia, 1913; served during World War I; on the staff of Columbus Hospital; died March 27; aged 62, of rupture of the heart.

David Taylor ✠ Yellow Springs, Ohio; Rush Medical College, Chicago, 1934; past president of the Green County Medical Society; served during World War II; died March 26, aged 50, of brain tumor.

Mark Marcus Temkin, Beaver Dam, Wis.; University of Wisconsin Medical School, Madison, 1933; member of the American Medical Association; served during World War II; died in Wisconsin General Hospital, Madison, March 25, aged 39, of coronary occlusion with infarction.

Alphonse Aloysius Thibaudeau, Buffalo; University of Toronto Faculty of Medicine, Toronto, Canada, 1906; formerly on the faculty of the University of Buffalo School of Medicine; on the staff of the Roswell Park Memorial Institute; formerly on the staffs of Emergency, Mercy, Millard Fillmore, Children's, and Buffalo General hospitals; died April 6, aged 64, of coronary thrombosis and diabetes mellitus.

Alvin Stewart Thurston ✠ Council, Idaho; University of Illinois College of Medicine, Chicago, 1925; served during World War I; county health officer; founded Community Hospital; died April 8, aged 50, of heart failure and hypertension.

Oscar Byron Tiller, Chipley, Fla.; University of the South Medical Department, Sewanee, Tenn., 1908; died April 7, aged 70.

John Michael Toomey, Lancaster, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1923; served during World War I; died March 15, aged 52, of carcinoma of the jaw and mouth.

Hugh O. Turrentine, North Little Rock, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1920; affiliated with Baptist State Hospital and St. Vincent Infirmary in Little Rock; died April 10, aged 51, of acute coronary occlusion.

Emanuel Theodore Urban, St. Louis; Washington University School of Medicine, St. Louis, 1902; member of the American Medical Association; died in Barnes Hospital April 11, aged 71, of arteriosclerosis.

Harry Warren Vinson ✠ Ottumwa, Iowa; Rush Medical College, Chicago, 1902; fellow of the American College of Surgeons; past president and for many years secretary of the Wapello County Medical Society; affiliated with St. Joseph Hospital and Ottumwa Hospital, where he died April 8, aged 73, of coronary thrombosis.

Heber H. Ward, Brooklyn; Kentucky University Medical Department, Louisville, 1905; on the staff of Samaritan Hospital; died March 31, aged 67.

Hobart Endicott Warren ✠ Palm Beach, Fla.; Harvard Medical School, Boston, 1894; at one time on the staff of the Beverly (Mass.) Hospital; served on the staffs of the Good Samaritan Hospital and St. Mary's Hospital, where he died March 17, aged 80, of cerebral hemorrhage.

Charles M. Watson ✠ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1900; on the staff of Presbyterian Hospital; died in Tucson, Ariz., March 11, aged 73, of cerebral hemorrhage.

Flora M. Watson-Reeves, Los Angeles; Hering Medical College, Chicago, 1893; died March 8, aged 93, of coronary occlusion and arteriosclerosis.

Caroline Weis, Los Angeles (licensed in California in 1918); died recently, aged 77, of a heart attack.

Walter Weller ✠ Clearwater, Fla.; Cornell University Medical College, New York, 1918; member of the Medical Society of the State of New York; affiliated with the University of Florida Infirmary in Gainesville; died March 11, aged 57, of injuries received when the automobile which he was driving was struck by a train.

Frank Fay Williams ✠ Canton, N. Y.; New York Homeopathic Medical College, 1883; for many years health officer and jail physician; on the staff of the Potsdam (N. Y.) Hospital, where he died March 13, aged 91, of injuries received when his automobile was struck by a train.

Arthur Carl Woggon ✠ Rochester, N. Y.; University of Buffalo School of Medicine, 1920; specialist certified by the American Board of Obstetrics and Gynecology; chief of obstetrics and member of the board of directors of the Park Avenue Hospital; on the staffs of Monroe County Hospital, Strong Memorial Hospital and the Rochester General Hospital, where he died March 16, aged 52, of coronary occlusion.

Emil Edward Wolf, Orlando, Fla.; Western Reserve University Medical Department, Cleveland, 1916; served in France during World War I; died April 21, aged 57, of uremia.

Samuel Wolf ✠ Philadelphia; Medico-Chirurgical College of Philadelphia, 1909; on the staff of Mount Sinai Hospital, where he died March 22, aged 77, of carcinoma of the colon.

Emil Rudolf Zak ✠ New York; Medizinische Fakultät der Universität, Wien, Austria, 1901; on the staff of the Beth David Hospital; member of the New York Academy of Sciences; died in Montefiore Hospital March 22, aged 72, of cerebral hemorrhage.

Samuel Lutz Zurmehly, Rushsylvania, Ohio; Miami Medical College, Cincinnati, 1890; served during World War I; died April 7, aged 88, of heart disease.

DIED WHILE IN MILITARY SERVICE

William Calaway ✠ Major, M. C., U. S. Army, San Bernardino, Calif.; Baylor University College of Medicine, Dallas, 1933; entered the medical corps of the U. S. Army in March 1939; surgeon at the Muroc Air Force Base; died Dec. 3, 1948, aged 40, of injuries received in an aircraft accident.

Foreign Letters

MADRID

(From Our Regular Correspondent)

May 1, 1949.

Innervation of the Digestive Tract

The second meeting of the Sociedad Española de Patología Digestiva y de la Nutrición on Dec. 17-18, 1948, in Madrid was attended by a large and very important audience. Drs. Vara Lopez, Lozano Blesa and Soler Roig spoke on "Surgical Methods to Improve Results in Treatment of Gastroduodenal Ulcers." Many took part in the discussion which followed this presentation.

Drs. Fernando de Castro, Pablo de Sala and J. M. Blanco spoke on "Peripheral Sensorial Routes of the Digestive Tract." The speaker with his collaborators stated that the afferent innervation of the gastrointestinal tract is identifiable. By using Irving's technic (stimulation of the inhibitory pupillary reflex through route of the third cranial nerve) and their own method of crossed anastomoses of the nerves, they confirmed the conclusions of other researchers that the sensorial endings of the stomach and of the intestines are stimulated by distension, whereas section and burning of the wall do not produce pain. They also found that during gastric digestion nerve endings are spontaneously stimulated and the impulse progresses through the afferent route of the vagus nerve and elicits reflex responses, whereas when the stomach is empty and its walls at rest, either reflexes do not occur or if they occur they are but few and of a limited transmission. The vagal innervation is very scanty in the duodenum, and even more scanty in the jejunum and in the ileum.

The speaker said that these experiments are not sufficient to determine whether or not the receptors of the vagus nerve which are physiologically stimulable by distension are the ones which in certain circumstances transmit pain. It is also difficult to find out whether the sensorial receptors of the splanchnic, which when stimulated provoke the inhibitory pupillary reflex, are predominantly pain receptors.

The results of these studies confirm the statements of Irving, McSwiney and Suffolk; namely, that all the segments of the gastrointestinal tract receive nerve supply from the vagus and the splanchnic nerves, with the exception of the jejunum and the ileum, which have only splanchnic innervation. However, the vagus and the splanchnic nerves do not contribute equally in the innervation of the duodenum and the stomach. These investigations showed that afferent fibers of the vagus supply the cardia, the fundus and the anterior portion of the body of the stomach. On the other hand, the innervation of all the remaining portion of the stomach, the antrum and the pyloric sphincter is constituted by a proportional number of afferent fibers of the vagus and of the splanchnic nerves. The innervation of the duodenum is predominantly splanchnic.

These studies also confirm those of McSwiney and Suffolk; namely, that the different segments of the digestive tract from the body of the stomach to the ileum are supplied by a rich afferent splanchnic innervation which is constituted by sensorial neurons corresponding to many spinal pairs. The areas receiving the largest innervation are the body of the stomach and the pyloric sphincter, which are supplied by fibers corresponding to no less than ten segments of the spinal cord.

The work carried on by de Castro, de Sala and Blanco is an important contribution to the histophysiology of the nervous system.

SWITZERLAND

(From a Special Correspondent)

GENEVA, May 4, 1949.

Conference of the Red Cross

The opening session of the Diplomatic Conference of Geneva to revise the Conventions of the Red Cross was marked by a decision to humanize war. This effort has to be made in peace time, as it is impossible to realize such agreements once a conflict has broken out. Mr. Petitpierre, president of the conference, said that one often hears that "the Conventions of Geneva did not hinder the atrocities of the last war, so what good is it to prepare new texts which will not be respected?" Against this decidedly negative opinion, he advances the idea that humanizing war should not be abandoned, just because it cannot be realized as completely as is desired.

The continued efforts of the International Committee of Military Medicine, which the International Committee of the Red Cross supported and developed, resulted in a reunion of governmental experts at Geneva in 1937 and 1938. This reunion, which was resumed in 1947 and 1948, terminated in the present efforts.

Object of the Conference.—These debates will last several weeks and all the great moral principles of medicine will be discussed. It is necessary that the physician be concerned with the spiritual forces which must govern his profession. The humanitary conventions constitute the veritable charter of medicine in times of war.

I. The Status of Captured Medical Personnel: This is one of the most controversial questions. The British want to consider him as a prisoner of war, but a majority of the delegates approve the position taken by the International Committee of Military Medicine, which holds that the physician, not being a combatant, cannot be treated as a prisoner of war; he must, on the contrary, continue his activity in full professional liberty to the benefit of his prisoner comrades.

II. Medical Service in Prisoner of War Camps: This service must offer absolute guarantees to avoid in both civil and military camps actions comparable to those during the past war. Moreover, it is necessary to augment the immunity conferred on the medical personnel which assures this service. One could even arrive at the concept that a physician of neutral nationality should have the medical direction of the camp.

III. Efficient Guaranties of the Convention: Until now the texts gave to protective powers the charge of the interests of the belligerents and especially those of the prisoners. Now there has been evoked anew the creation of an international organization which would have this mission. Without prejudging the decision which will be taken, it is evident that there will be considerable improvement; whatever the organization, the International Committee of the Red Cross, the Red Cross leagues, or an organization created only for this purpose in times of peace, the one or the other situation would be superior to the present situation.

IV. Charter of the Physician in Times of War: Many other points have been raised by the discussions: the guaranties of the medical profession in occupied territory, the immunities to be accorded to civilian victims or war and civil hospital establishments, the application to maritime wars and the regulations of aviation medicine. These problems constitute a veritable charter of the physician in times of war, and the physician, who is the principal beneficiary, is duty bound to interest himself in the evolution of this great historic document, which constitutes the Convention of the Red Cross. It is regretted that not all national delegations assembled at present in Geneva have a representative of our profession, because medical technics play a great part in the studies undertaken.

OSLO

(From Our Regular Correspondent)

May 7, 1949.

A Three Year Tuberculosis Survey in Oslo

On Monday, April 25, the tuberculosis department of the Oslo Public Health Service began a tuberculosis survey which will be uninterrupted, and organized in a way that everyone will be examined every third year. Dr. Eyolf Dahl, who is in charge of the tuberculosis department, is giving publicity to the survey, pointing out the many compensations for the few inconveniences imposed on the community. Persons under the age of 15 do not come within the scope of this survey, as school children under this age are already systematically examined for tuberculosis. The survey is compulsory, and all who wish to escape it must produce satisfactory evidence, such as a medical certificate, conferring exemption from medical examination. This is carried out in two stages. On the first occasion a tuberculin test is supplemented by a roentgenologic examination, and on the second occasion, three days later, the tuberculin reaction is read off. If it is negative, BCG vaccination is recommended. But it is not compulsory on this occasion, although recent legislation has provided for compulsory BCG vaccination under certain conditions. Had the new BCG law been invoked in connection with the present survey, it was feared that the medical examination would be shirked by some timid souls. The costs of this survey are borne in their entirety by the authorities, and the examinations are being carried out with such smooth efficiency that the loss of time and the minor discomforts they entail are negligible in comparison with the benefits conferred. At no cost to himself, every inhabitant of Oslo now has the chance to be reassured every third year with regard to his health from the tuberculosis point of view.

More and More Specialists

Professor Axel Ström has lately undertaken a statistical study of the conditions under which Norwegian doctors become specialists. His first point is that the proportion of doctors who become specialists has grown considerably during the past two decades. At the beginning of 1930, only 20 per cent of the members of the Norwegian Medical Association had qualified as specialists in one subject or more. In January 1949, as many as 31 per cent could claim to be specialists. Several of these doctors had taken the trouble to qualify as specialists in two or more subjects.

Professor Ström's account of the gauntlet doctors have to run in order to become specialists shows how well earned this title is. He shows that the average age of the doctors when they first qualified as specialists was 40 years, and the average length of the interval between qualifying as a doctor and qualifying as a specialist was thirteen years. These specialists had spent on the average eighty-five months in hospital studying medicine in general and certain specialties in particular. The would-be specialist who has fulfilled all that is required of him has to send in his application to rank as a specialist to a body representing the Norwegian Medical Association. This long via dolorosa does, however, lead the specialist into pleasant pastures, with the right among other things to charge a higher scale of fees than he did as a general practitioner working under the national insurance scheme. Besides, a specialty usually implies town life and all its advantages over the strenuous life of a relatively underpaid country doctor.

How and Where May a Doctor Advertise?

To some foreigners it may seem strange that the lay daily press contains the advertisements of doctors, many of whom are of high standing and holders of important academic appointments. But the advertising of doctors is kept within strict limits by the Norwegian Medical Association. A doctor may, to be sure, advertise in the newspaper every day, but he must do so with discretion, preferably in a small space in the company of other doctors. An advertisement may state what the specialty is, but if it is surgery, for example, one does not announce the fact that one is particularly interested in some strictly limited field in surgery. If one wishes to supplement a special subject with general practice, one may advertise in both these fields, but there is at present a movement in favor of prohibiting such a blunderbuss policy. One may put a door plate over the office or surgery, but not in other houses, and one must not exhibit advertisements in hotels, railway stations or other public buildings. Advertising at cinemas and by the wireless as well as by postal circulars is also forbidden. If one has not qualified as a specialist, the services offered in the advertisement must be only those of general practice. It is the Norwegian Medical Association, to which about 90 per cent of all Norwegian doctors belong, which alone determines who is and who is not a specialist. It is also this association which decides what is ethical and what is unethical advertising. And the ethical prestige it enjoys helps it to prevent straying far from the narrow path of moral rectitude.

The Rarity of Cancer of the Stomach After Ulcer of the Duodenum

At the Drammen Hospital, Dr. O. Römcke and Dr. G. Sponland have lately given statistical proof of a hitherto rather vague impression that the subjects of duodenal ulcer do not die of cancer of the stomach. They examined 556 cases of cancer of the stomach with special reference to a history of roentgenologically demonstrated gastric and duodenal ulcer. They found 20 cases with such a history, but in 18 of them the ulcer was situated in the stomach. In 1 of the 2 cases of duodenal ulcer there was an interval of twenty years between the ulceration of the duodenum and the development of cancer of the stomach. Now the investigations of Knutsen and Selvaag in Drammen have shown what the incidence of gastric and duodenal ulcer is among persons over the age of 30 in this town, and the relative frequency of these two forms of ulcer. On the strength of these and certain other observations, Dr. Römcke and Dr. Sponland calculate that when one suffers from gastric ulcer, the chance of subsequently having cancer of the stomach is three times greater than the average, whereas when one suffers from duodenal ulcer, the chance of having cancer of the stomach is only one fifth of the average chance. They do not, however, indulge in any attempts to explain why duodenal ulcer seems to confer a certain immunity to cancer of the stomach. Incidentally, they draw attention to the considerable number (9) of cases of pernicious anaemia among their 556 cases of cancer of the stomach.

BRAZIL

(From Our Regular Correspondent)

São Paulo, May 2, 1949.

Spinal Fluid and Gastric or Duodenal Ulcer

Prof. Dr. Loforte Gonçalves, of the Medical School of Porto Alegre, in Southern Brazil, performed a study on 23 patients with gastric or duodenal ulcer in connection with their spinal fluid. All the patients with a roentgenologically and/or surgically proved gastric or duodenal ulcer had an albumin content in the spinal fluid above 0.29 Gm. per thousand cubic centimeters (excepting 1 patient with a "suspected" gastric ulcer), and the cellular elements were within normal limits except in 1 patient with gastric ulcer, who had 3.8 per cubic millimeter, and another with a duodenal ulcer, who had 4.7 per cubic millimeter. They were then on the threshold of a tendency toward albumin-cytologic dissociation.

Patients with uncomplicated, nonulcerative bulboduodenitis, roentgenologically studied, presented an albumin-globulin ratio below 0.30 in the spinal fluid and cellular elements within normal limits.

With the exception of a patient who had epileptic seizures and another who was schizophrenic, all other patients presented a normal psychic status.

Prof. Loforte Gonçalves concluded that patients with gastroduodenal ulcers had spinal fluid reactions for albumin suggesting a condition of humoral reaction similar to that observed in the spinal fluid of a great number of patients with polyradiculoneuritis and encephalitis in the chronic or regression phase.

Correspondence

NEUROLOGIC COMPLICATIONS FOLLOWING ADMINISTRATION OF PERTUSSIS VACCINE

To the Editor:—Prompted by the disturbing report of Byers and Moll on the "Encephalopathies Following Prophylactic Pertussis Vaccine" which appeared in *Pediatrics* (1: 437 [April] 1948), Toomey conducted a survey based on a questionnaire, the results of which were published in THE JOURNAL, February 12, page 448. He rejects the possibility that these reactions are due to an antigen antibody response because the children were not previously immunized. Although this is a plausible deduction based on the information Toomey had at his disposal, my reports on this problem which appeared in *The Brooklyn Hospital Journal* (2: 107 [April] 1947), and with Sorley in the *New York State Journal of Medicine* (47: 1016 [May 1] 1947) were apparently not available to him. In them is a description of a clinical experiment which offers conclusive evidence to the contrary. I take this opportunity to abstract the cases reported (for a detailed description, the reader is referred to the original papers) and to add a summary of a third.

CASE 1. R. T., a boy, was born at term April 12, 1943. There was a family history of allergic disturbances. At 4½ months an illness developed characterized by a persistent cough and vomiting at meal times. This probably was an undiagnosed attack of pertussis. In the second week of this illness he was given fluid pertussis vaccine (20 billion organisms). Two weeks later he became somnolent; weakness developed in the neck and sphincters, with gradual spread of the weakness and hypotonia to involve the entire body, with emphasis on the left side, in the period of a month. This was followed by a gradual improvement until the age of 8½ months, when he was considered normal. At nine months he received a second injection of pertussis vaccine (30 billion organisms). One week later a similar neurologic disorder appeared. The spread this time seemed more rapid, and, although this episode did not appear to be as severe as the first, there was little recovery. He received his third pertussis injection at ten months. Three days later another neurologic exacerbation developed with rapid spread. There was slow but steady improvement, although he remained spastic. He had a fourth exacerbation following an infection of the upper respiratory tract without any known exposure to pertussis or to the vaccine, and was never able to walk again. The parents were dissatisfied because of the child's lack of progress and consulted an immunologist, who gave the boy an intradermal injection of pertussis vaccine. The skin test was reported as negative, but twenty-five minutes later the child had sphincteric weakness, slept fitfully for twelve hours and awoke completely limp. He never recovered from the paralysis of the entire body, had difficulty in swallowing and aspirated. Death occurred from bronchopneumonia seven weeks later at the age of 43 months.

CASE 2.—In R. M., a male infant born Feb. 14, 1944, convulsions developed at the age of 7 months following a second injection with pertussis vaccine. The child received two more injections of the vaccine in quick succession, and his condition deteriorated after each injection. When studied at the age of 11 months, he presented mental deterioration, generalized convulsions and cortical atrophy. At the age of 34 months he could not walk or talk, but his convulsions had decreased somewhat. There was no note of epilepsy in the family. A maternal grandfather suffered from hay fever.

CASE 3.—in J. S., a female child, the third sibling, an encephalopathy (kernicterus) of erythroblastosis fetalis, due to sensitivity to agglutinogen A, developed, and as a result she was left spastic and retarded. At seven months she received pertussis vaccine (20 billion organisms) in one arm, and 1 cc. of alum precipitate diphtheria toxoid in the other arm. Five weeks later she was admitted to a contagious disease hospital listless, unable to cry, so rigid that meningitis was suspected and with a temperature of 106 F. The patient improved and returned to her norm. At the age of 13 months she was given a second injection of pertussis vaccine (30 billion organisms) and diphtheria toxoid. She became restless and cranky that day, had a "wheeze" the next day and could not sleep. She was readmitted to the hospital with a temperature of 104 F. and again was rigid and had difficulty in respirations. During both hospitalizations the attending physicians did not believe she had croup, could find no chest signs, and spinal fluid studies were normal. Following this episode her spasticity and weakness were much more marked. At 17 months the child was found dead in her crib. It is possible that she smothered as a result of her inability to turn the head. There was no autopsy. Because of the history of erythroblastosis one might suspect that the pertussis vaccine had been contaminated by blood; however, the vaccine used on this child was grown on sheep red cells rather than on human red cells.

I have since been informed of 4 other cases in which the administration of pertussis vaccine seemed to be followed by convulsions or some other neurologic complication.

It is questionable whether the first episode of case 1 could be ascribed to an encephalopathy complicating pertussis, or to pertussis vaccine or to both. The subsequent course of events in this case, with the last exacerbation following a minute amount of antigen, can be explained only on the basis of an antigen-antibody reaction. The other 2 cases offer confirmatory evidence. The neurologic complications described here, and by Byers and Moll, are as protean as the encephalopathies complicating whooping cough. These cases offer presumptive evidence for the supposition that the encephalopathy complicating whooping cough may be the result of an antigen-antibody reaction. Most disturbing is the fact that Byers and Moll observed 15 cases of encephalopathy complicating pertussis vaccine in a ten year period and 26 cases of encephalopathy complicating whooping cough in a like period. If these figures are generally applicable, it appears that a neurologic complication is as likely to develop following the vaccine as during the disease itself, since only 25 per cent of the children in that vicinity were immunized. Possibly, however, such a small series is not statistically significant, and Byers and Moll refrained from making such an observation.

How could such a response follow the first immunization? I can offer only partial explanations. Case 1 suggests the possibility that some of these patients may have had a previous undiagnosed attack of pertussis, but such a possibility could not be frequent. Also, Toomey selected his cases on the basis of a history of a convulsion following administration of pertussis vaccine. Such a series might be heavily loaded with epileptics and persons with low convulsive thresholds. Possibly a potentially epileptic child will convulse after an immunization as much from fright as from the antigen introduced. Significantly none of the cases seen in Cleveland and vicinity showed irreversible changes. To worry about patients with epileptic family histories would be futile, since this would include 17 per cent of the population, most of whom would not be epileptic. However, it must be admitted that Dr. Toomey's pertinent observation that such reactions may follow the first immunization will have to remain unexplained.

In view of the foregoing, it is of utmost importance to ascertain the frequency of neurologic complications following pertussis vaccine. I agree with Dr. Toomey that a report should be made of every important reaction, and complete data kept by the physician. Since an antigen-antibody reaction may be the cause of serious complications, a child should not be given a second injection of pertussis vaccine if a previous one was followed within five weeks by somnolence, irritability, convulsions or any other untoward neurologic complication. The size of the dose does not seem important. Case 1 suggests that skin testing is futile. The vaccine should not be administered in the presence of any undiagnosed disease of the nervous system, especially if such disease might possibly represent a complication of pertussis, which at times may not be recognized. The

question as to whether or not a child with a neurologic disturbance should receive pertussis vaccine will depend on the circumstances. It is better not to expose a child with an unstable nervous system to the danger of a convulsion, but a superintendent of a home for feeble-minded infants would be remiss in his duties if he did not protect his wards against the possibility of an epidemic of whooping cough. It might be wise to give an epileptic or potentially epileptic child some phenobarbital before and after the administration of pertussis vaccine. The vaccine should not be given in the presence of fever or lymphocytosis.

There are not enough reported aftermath reactions to discontinue the use of vaccine.

MATTHEW BRODY, M.D., Brooklyn.

[The letter of Dr. Brody was referred to Dr. Toomey who replies:]

To the Editor:—I have read Dr. Matthew Brody's manuscript. I was unfamiliar with the *Brooklyn Hospital Journal* report of April 1947.

As Brody states, his patient may have had undiagnosed pertussis, the patient producing his own antigen with the disease. This could institute an antigen-antibody reaction.

Patient 2 had a reaction following the second injection of pertussis vaccine, a clear-cut antigen-antibody phenomenon.

The third case is not clear—it was in a person with a neurologic disease who had a trigger type of response. There was a long incubation period of five weeks in a patient with kernicterus encephalopathy which followed the usual pattern. This might have been the etiologic factor.

I am glad to note that the author agrees that a second injection of pertussis vaccine should be cautiously given to anyone who has had a previous reaction, that injection should not be made in a person with a disease of the nervous system, except as circumstances warrant; that a patient should not be given the injection when acutely ill with something else and with fever.

Of course antigen-antibody reactions are generally accepted; possibly I did not make this clear. We only questioned how it could explain a primary reaction in children who had not received injections.

JOHN A. TOOMEY, M.D., Cleveland.

DIABETIC RETINITIS

To the Editor:—The statement has been made that in 80 to 100 per cent of diabetic persons retinitis develops within the first twenty-five years of the onset of the hyperglycemia. The thought should be expressed that these current statistics may have little validity from the point of view of future prognosis. It must be recalled that during this past twenty-five year period we have gone through three major changes in therapy. First, no insulin, then only the unmodified insulin, and, lastly, for the past approximately ten years the protamine zinc and other long-acting insulins were available. It must further be remembered that the general public distribution of these insulins postdates their availability.

The results of therapy with protamine zinc insulin cannot as yet be tabulated, as we must await a full twenty years after its introduction. Only patients whose hyperglycemia and glycosuria have precipitated after the introduction of protamine zinc insulin and who have been treated exclusively with this agent are valid subjects for statistical study of the rate of deterioration with this regimen. All patients whose diabetes antedate this era represent mixed therapy. It is to be expected that protamine zinc insulin, with its profound superior metabolic influence, will alter the course of events. With the unmodified insulins it is to be remembered that for many hours of the day, particularly the overnight period, many of these patients were out of metabolic balance. It was common to see early morning ketonuria and decided hyperglycemia. Balance studies have shown that these patients were in negative nitrogen balance during this time. The plea must be made to avoid extreme pessimism as to the results of careful control of the diabetic person until sufficient time has elapsed to demonstrate the true validity of either the free glycosuria or the controlled glycosuria regimens with protamine zinc insulin. The burden of proof is on those who advocate free glycosuria. It is the type of study that should be made only in a large hospital center under adequate control and is not the therapeutic procedure of choice for the general practitioner.

There is still another concept in diabetic terminology which requires revision. The conventional indications for the degree of severity of diabetes must be reconsidered. The use of the total amount of insulin required to control one manifestation of this clinical syndrome should not be the index of the severity. A patient whose glycosuria is easily controlled by simple dietetic measurements but whose very existence is threatened by peripheral gangrene and retinitis cannot be considered to have mild diabetes. The extent and rapidity of deterioration should be the true index.

HERBERT POLLACK, M.D., New York.

THE DONORA DISASTER

To the Editor:—Not often is a relatively minor disaster so loaded with significance for the whole country as was that of October 30 at Donora. It deserved also more intelligent handling than it recently received in THE JOURNAL'S Queries and Minor Notes columns (p. 1122, April 16, 1949). Highlighting as it did the growing problem of industrial air pollution, the Donora tragedy should be most closely studied in its public health aspects. Suddenly everyone realizes the prohibitive health costs to the community from industrial pollution of its atmosphere—which I have been pointing out since 1941.

Is the medical profession now to leave consideration of this serious health hazard to governmental health authorities and still further weaken its stand as the nation's health guardian? Is this profession to stand for health or for disease?

The Donora disaster offers a most pertinent case in point. The United States Public Health Service, now engaged in studying air pollution at Donora and elsewhere in the heavily industrialized Monongahela valley, had evinced no interest in this health problem previous to the October 30 disaster—it had in fact refused to grant requested financial support for our studies which have aided greatly in focusing the nation's attention on this major health hazard. Nongovernmental research opened up this problem and laid it before the public; why should medicine now stand quietly aside while governmental agencies take over the field?

Even the timely symposium on air pollution at the Atlantic City American Medical Association meeting gets off to a poor start when judged by the preliminary program printed in the April 23 issue of THE JOURNAL (p. 1172). With editorial emphasis (p. 1150 in the same issue of THE JOURNAL) on its public health bearing, the symposium program treats of this most important phase of the matter only as a tail end afterthought. Physicians and engineers in the field of industrial medicine have thus far evinced a major interest in the impact of industrial activities on the health of workers in the plant from the standpoint of economic hazards to management (in damage claims or lowered output). Only where industry's

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liability showed signs of extending beyond the plant confines (as in the case of beryllium) had this group evinced much interest in the truly public health aspects of industrial air pollution. We need to make use of their skill and knowledge in curing the pollution evil but seemingly cannot rely on them in emphasizing its community dangers.

CLARENCE A. MILLS, M.D., Cincinnati.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part III.* June, various centers. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Written.* Various Centers. July 15. *Oral.* Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Oct. 17. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC. *Part I.* Various Centers. Feb. 3. Final date for filing application is Nov. 5. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part II,* New York City, Jan. 1950.: Final date for filing application for Part II is Aug. 15. Address: Sec.-Treas., Dr. Harold A. Sofield, Room 1856, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Chicago, Oct. 7-8. Final date for filing application is Sept. 1. Sec., Dr. Robert A. Moore, 507 Euclid Ave., St. Louis.

AMERICAN BOARD OF PEDIATRICS: *Written.* Under local monitors, June 24. *Oral.* Cleveland, Sept. 16-18; New York City, Oct. 21-23; Chicago, Dec. 9-11. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH: *Parts I and II.* New York, Oct. 22-24. Final date for filing application is July 22. Sec., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. *Special Examination,* October. Place to be announced. Final date for filing application is July 15. December, New York City. Sec. Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, October 26. Final date for filing application is July 1. Sec., Dr J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written,* December. *Oral and Clinical.* Chicago, Feb. 11-15. Final date for receipt of case histories is Sept. 1, 1949. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ALASKA: * Juneau, Sept. 6. Sec., Dr. W. M. Whitehead, Box 140, Juneau.

CALIFORNIA: *Examination.* San Francisco, June 21-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

COLORADO: * *Endorsement.* Denver, July 5. Sec., Dr. W. W. King, 831 Republic Bldg., Denver.

CONNECTICUT: * *Examination.* Hartford, July 1. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

DISTRICT OF COLUMBIA: * *Examination.* Washington, Nov. 14-15. Sec., Dr. G. C. Ruhland, 4130 E. Municipal Bldg., Washington.

FLORIDA: * *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GUAM: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

HAWAII: * *Examination.* Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

ILLINOIS: Chicago, June 28-30. Superintendent of Registration, Mr. Fred W. Ruegg, Capitol Building, Springfield.

INDIANA: *Examination.* Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination. Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

MAINE: Augusta, July 5-6. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MASSACHUSETTS: *Written.* Boston, July 12-15. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MINNESOTA: * Minneapolis, June 21-23. Sec., Dr. Julian F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

MONTANA: Helena, Oct. 3-5. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEVADA: Carson City, Nov. 7. Sec., Dr. George H. Ross, 112 N. Curry St., Carson City.

NEW HAMPSHIRE: Concord, Sept. 8-9. Sec., Dr. J. S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination.* Trenton, June 21-24. Sec., Dr. E. H Hallinger, 28 West State Street, Trenton 8.

NEW MEXICO: * Santa Fe, Oct. 10-11. Sec., Dr. Charles J. McGoey, Coronado Bldg., Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracue, June 28-July 1. Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

NORTH CAROLINA: *Examination.* Raleigh, June 23-25. *Endorsement.* Morehead City, July 23. Sec., Dr. Ivan Proctor, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: * *Written,* Grand Forks, July 5-7. *Reciprocity,* Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

OREGON: * *Examination.* Portland, July 7-9. *Reciprocity.* Portland, July 22. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Building, Portland.

PENNSYLVANIA: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND: * *Examination.* Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination.* Columbia, June 27-29 *Endorsement.* Columbia, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * *Examination.* Pierre, July 19. Sec., Dr G. J. Van Heuvelen, Capitol Bldg., Pierre.

UTAH: *Examination.* Salt Lake City, July 13-15. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 21-23. Sec., Dr. F. J. Lawliss, Richford.

WASHINGTON: * Seattle, July 18-20. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WEST VIRGINIA: Charleston, July 7-9. Commissioner, Public Health Council, Dr. N. H. Dyer, State Capitol, Charleston 5.

WISCONSIN: * *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Juneau, Aug. 28. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: Tucson, June 21. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

DISTRICT OF COLUMBIA: Washington, Oct. 24-25. Sec., Dr. G. C. Ruhland, 4130 E. Municipal Bldg., Washington.

IOWA: Des Moines, July 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Detroit and Ann Arbor, Oct. 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

NEBRASKA: Omaha, Oct. 4-5. Director, Bureau of Examining Boards, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln 9.

OREGON: Portland, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

RHODE ISLAND: *Examination.* Providence, Aug. 10. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WASHINGTON: Seattle, July 13-14. Sec., Department of Licenses, Mr. Edward C. Dohm, Olympia.

WISCONSIN: Milwaukee, Sept. 24 and Dec 3. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Annual Registration Fee: Validity of Requirements for Reinstatement after Cancellation for Failure to Pay. —The plaintiff filed a complaint against the defendant, State Board of Medical Examiners, in which he asked to have his license to practice medicine reinstated. The trial court sustained the defendant's motion to dismiss the action and entered judgment in favor of the Board, so the plaintiff physician appealed to the Supreme Court of Colorado.

The court made the following material findings of fact: 1. The doctor was duly licensed and admitted to practice medicine in the state of Colorado Jan. 6, 1925. 2. March 1, 1933, the said license of the doctor was cancelled by the board, without hearing or notice to the doctor, under the asserted authority conferred on the board by section 11, chapter 109, 1935 C.S.A., which provides for the payment by all medical licentiates of an annual registration fee. The said statute contains the following language:

If any licentiate fails for three consecutive years to pay the annual registration fee it shall be the duty of the board without hearing or notice to cancel his license subject to reinstatement. If application for reinstatement is made the board shall reconsider the moral character and professional qualifications of the applicant upon notice and hearing before ordering reinstatement, and unless such showing shall thereupon be made to the board as would entitle the applicant to the issuance of an original license reinstatement shall be denied.

3. There was no requirement for the payment of an annual registration fee in 1925 when the doctor was licensed. The aforementioned statute was adopted in 1929. 4. The doctor paid no annual registration fee at any time prior to March 1, 1933, when the board cancelled his license. The doctor had no actual knowledge of the annual registration fee requirement provided by the 1929 statute. 5. The doctor became a nonresident when, from 1932 to 1934, he was engaged in the study of medicine at the University of Berne, School of Medicine, Berne, Switzerland, and on his return he was employed by the United States Government as a medical officer in its Industrial Medical Branch at the Port of Embarkation, Brooklyn, in which service he has continued ever since. 6. The doctor had no knowledge or notice of the cancellation action taken by the board until November 1944, when the Character Investigating Committee of the United States called that fact to his attention. 7. Jan. 15, 1945, the doctor by letter addressed to the board requested reinstatement of his license to practice medicine in Colorado and offered to pay any unpaid annual registration fees. 8. The request was denied by the board secretary who informed the doctor that he could only be reinstated pursuant to the statute of 1929; that under said statute he must possess qualifications entitling him to the issuance of an original license; that the medical school issuing the diploma on which the doctor was admitted to practice in 1925 was no longer on the accepted list; that to secure an original license he would be required to meet all the provisions of the basic science law adopted in 1937. 9. On Feb. 27, 1946, the doctor submitted a number of exhibits which, it is contended, established his further qualifications to practice. These were rejected by the board and returned to the doctor. 10. The doctor cannot meet the requirements of the basic science law and cannot meet the present requirements of the board for issuance of an original license. The plaintiff challenges the constitutionality of the annual registration law on the ground that it violates the Fourteenth Amendment of the Constitution of the United States, in that it denies to him the guarantee of due process of law; and that it is an arbitrary, discriminatory and oppressive exercise of the police powers of the state.

We consider, said the Supreme Court, only the question as to whether the statute authorizing a cancellation of the doctor's license for three years' consecutive nonpayment of registration fee, and requiring, as a condition precedent to reinstatement, that the doctor shall make such showing to the board as would entitle him to the issuance of an original license, is a proper exercise of the police power of the state. It is a well established principle that the practice of medicine, affecting as it does the public health and safety of the people, is subject to reasonable regulation by the state in the exercise of its police power for the promotion of the general welfare and the only limit to this regulatory legislative power in prescribing conditions as to the right to practice a profession, the Supreme Court continued, is that the regulations shall be reasonable.

The statutory ground for cancellation of this plaintiff's license, said the Supreme Court, is the nonpayment for three consecutive years of an annual registration fee. Under the terms of the statute the doctor is permitted to apply for "reinstatement," but on such application he must possess qualifications, educational and otherwise, of an entirely different character from those required when he was admitted, licensed and accepted as qualified to practice medicine in 1925. The sole shortcoming on the part of the doctor, by reason of which he forfeited all his former standing as one fully qualified to practice medicine and subjected himself to tests not required when his license was granted, is that for three years he failed to pay the registration fee of $10. Thus he is deposed as a practicing doctor, since the school of his medical training is not now on the "accredited" list, although it satisfied all requirements as of the date of his admission. The failure of the doctor to pay a small annual registration fee, concluded the court, has a very remote and disconnected relation to the promotion of morals, safety, general welfare or the public health. When, as here, a complete forfeiture is predicated on such nonpayment, and new conditions of eligibility for reinstatement, far above and beyond the payment of the delinquent fees, are attempted to be imposed, we believe that the limitations on a proper exercise of the police power have been exceeded, and that the "regulation," if such it can be called, is harsh, unwarranted and unreasonable. If this alleged "regulation" were held to be reasonable, many excellent physicians and surgeons might suffer the loss of their "valuable right" to practice their profession if, during an extended absence, or for whatever reason, they neglected for three years to pay a registration fee. They might find themselves unable, notwithstanding actual ability and experience, to meet the new qualifications for an original license. If, in fact, good and sufficient cause exists to deprive the doctor of the right to practice his profession, and if that cause or disqualification bears a fair relation to the public health, safety, morals or welfare, there is ample authority in other provisions of the medical practice act to accomplish the result of a revocation of his license.

Accordingly the judgment in favor of the board was reversed and the case remanded with directions to reinstate the plaintiff's license on payment of delinquent registration fees. *Lipset v. Davis, 203 P. (2d) 730 (Colo., 1949).*

Medical Motion Pictures

FILM REVIEW

Get Rid of Rats. 16 mm., black and white, sound, 374 feet, showing time ten minutes. Produced in 1948 by the National Film Board for the Department of National Health and Welfare, Ottawa. Procurable on rental or purchase from the National Film Board of Canada, 620 Fifth Ave., New York 20 and 400 West Madison Street, Chicago 6.

This film depicts why rats, known to be dangerous disease carriers, should be controlled. The breeding and feeding grounds of rats are dramatically featured. Control measures such as ratproofing of cellars and storage buildings and methods of depriving rodents of food and shelter so as to eliminate rat-spread epidemics are portrayed. The degree of destruction might have been more effective by presenting the damage in actual dollars and cents. More emphasis should have been placed on methods used to control rats in order to tie in more accurately with the film title. Although the scenes are taken in Canada, similar conditions are prevalent in many parts of the United States. Technically the film is well done; it can be recommended for showing to community groups to stimulate interest in connection with rat control campaigns.

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Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

217:1-120 (Jan.) 1949

*Clinical Intoxication with Potassium: Its Occurrence in Severe Renal Insufficiency. N. M. Keith and H. B. Burchell.—p. 1.
Effect of Para-Aminobenzoic Acid on Murine Typhus: Clinical Study of 60 Cases. R. S. Diaz-Rivera, C. Guzman Acosta, P. J. Collazo and A. P. Lebron.—p. 13.
Kala-Azar: 3 Cases Developing in Veterans. J. P. Duffy and L. E. Davison.—p. 21.
*Streptomycin in Treatment of Tuberculous Enteritis: Report of Thirty-Three Cases. E. F. Mason, W. W. Kridelbaugh, W. H. Crouch and Melgie Ward.—p. 28.
Improved Method for Detection of Osmotic Abnormalities of Erythrocytes. M. H. Jacobs, Dorothy R. Steward, W. J. Brown and L. J. Kimmelman.—p. 47.
Osmotic Resistance of Human Erythrocytes in Normal, Carrier and Anemic States: with Special Reference to Changes Due to Age, Race, Sickle-Cell Anemia, Mediterranean (Cooley's) Anemia and Congenital Hemolytic Icterus. B. Dickstein, W. E. Landmesser Jr., W. E. Love and others.—p. 53.
Carinamide as Adjuvant to Penicillin in Treatment of Subacute Bacterial Endocarditis. S. H. Eisman, C. F. Kay, R. F. Norris and W. P. Boger.—p. 62.
Functional Systolic Murmurs in Children. C. R. Messeloff.—p. 71.
Electrocardiogram of Hyperthyroid Patients without Evidence of Heart Disease: The Ventricular Gradient. A. L. Hyman and R. B. Failey Jr.—p. 79.
Treatment of Pneumonia with Intramuscular Aqueous Penicillin Once a Day. W. Weiss and I. Steinberg.—p. 86.
Isolation of Herpes Virus from Case of Atypical Pneumonia and Erythema Multiforme Exudativum with Studies of Four Additional Cases. H. R. Morgan and M. Finland.—p. 92.
Mercurial Diuretics. C. T. Ray and G. E. Burch.—p. 96.
Religion and Psychiatry. F. R. Drake.—p. 111.

Clinical Intoxication with Potassium.—Keith and Burchell report 13 cases of potassium toxemia in 13 patients between the ages of 17 and 61 years with acute, subacute and chronic forms of bilateral diffuse nephritis. All patients died, and the clinical diagnosis was confirmed at necropsy in 10 cases. Potassium salts were administered as diuretic agents to 3 of the patients, 2 of whom had edema, and toxic effects resulted. Certain clinical symptoms such as paresthesias of the hands and feet after the ingestion of the potassium salts suggested the possible presence of potassium intoxication. The actual proof of the potassium intoxication rests on the demonstration of a coexisting hyperpotassemia and a characteristic electrocardiographic sequence in the following order of appearance: increased height of the T wave; a QRS of increased width; loss of P waves; gross intraventricular conduction defects, the electrocardiogram superficially simulating bundle branch block; cardiac arrest with irregular undulating potentials of low voltage. The serum potassium in the authors' cases varied from 7.7 to 10.5 milliequivalents per liter. Potassium toxemia produces a serious condition in the myocardium, which may be reversible but also can lead to fatal cardiac standstill. Beneficial therapeutic procedures such as the use of calcium and sodium salts and solutions of dextrose and blood can be applied and are particularly indicated in patients with early potassium intoxication. The administration of potassium salts to patients with severe renal insufficiency may be a dangerous procedure.

Streptomycin in Tuberculous Enteritis.—Mason and his co-workers treated 33 male patients between the ages of 20 and 58 years with active pulmonary tuberculosis and a complicating tuberculous enteritis with streptomycin. The daily dose of the drug varied between 1 and 2 Gm. Within this range no difference in response was observed when the intramuscular route was used. This method may be preferable to the administration by mouth. Treatment was continued for sixty to one hundred and twenty days. Improvement was noticed by the patients practically from the time streptomycin was started. Relief of diffuse and localized abdominal tenderness, rigidity and distention came within a few days after relief of symptoms. The liquid stools became progressively soft and then formed and were reduced in number from an average of six per day to an average of two per day by the end of the first week. The presence of occult or gross blood, mucus and pus disappeared as the stools became normal. There was an average gain of 4.7 pounds (21.3 Kg.) in weight per month. Roentgen reports of 17 patients chosen because of adequate examinations before and after treatment revealed decided irregularities in the ileocecal area after ingestion of barium meal or on barium enema before streptomycin was started, and a normal cecum, terminal ileum and ascending colon fifty to three hundred days after streptomycin was started. The beneficial effect of streptomycin on ulcerating tuberculous enterocolitis secondary to pulmonary tuberculosis has thus been demonstrated clinically and roentgenologically.

American J. Obstetrics and Gynecology, St. Louis

57:1-210 (Jan.) 1949

Present-Day Status of Noninvasive Cervical Carcinoma. G. A. Galvin and R. W. TeLinde.—p. 15.
Adenocarcinoma of Cervix and of Cervical Stump. B. Carter, W. L. Thomas and R. T. Parker.—p. 37.
Adenocarcinoma of Uterus: Observation on Treatment and Histologic Findings Following Intracavitary Radiation. J. M. Hundley Jr., E. S. Diggs and T. Kardash.—p. 52.
Facts Pertinent to Rational Concept of Abruptio Placentae. R. A. Bartholomew, E. D. Colvin, W. H. Grimes Jr. and J. S. Fish.—p. 69.
Gynandroblastoma of Ovary. J. E. Hobbs.—p. 85.
Physiopathology of Eclampsia. W. F. Mengert, R. J. Jennett and W. W. Brown Jr.—p. 97.
Second Stage of Labor: III. Number of Pains. L. A. Calkins.—p. 106.
Fetal Mortality in Breech Deliveries. W. F. Seeley.—p. 113.
Use of Methionine in Obstetrics. N. W. Philpott, M. Hendelman and T. Primrose.—p. 125.
Bacteriology of Gynecologic and Involuting Puerperal Uterus. H. C. Hesseltine and K. Eileen Hite.—p. 143.
Morphology of Human Fallopian Tube in Early Puerperium. L. M. Hellman.—p. 154.
Ovarian Pregnancy with Report of 3 Cases. K. M. Wilson and W. L. Ekas.—p. 166.
*Observations on Rooming-In Program of Baby with Mother in Ward and Private Service. T. L. Montgomery, R. E. Steward and E. Pauline Shenk.—p. 176.
Wide Conization of Cervix: Follow-Up of One Thousand Cases, Six Hundred from Two to Fourteen Years. R. J. Crossen.—p. 187.

Rooming-In of Baby with Mother.—Montgomery and his associates say that in July 1947 the policy of rooming the normal, full term, newborn baby with its mother was inaugurated in the Jefferson Medical College Hospital. Until April 12, 1948, 1,018 newborn babies were cared for in this fashion. Babies are kept in cribs at the mother's bedside unless one or the other is ill or unless at night baby is unusually noisy. A small crib wardrobe is hung on the end of each baby's crib. The top shelf contains covered jars for alcohol sponges, water sponges, dry cotton balls and used sponges. The larger lower shelf contains a supply of diapers, pads and blankets. With this arrangement, the mother can reach her baby and the materials for its care, and no one touches these materials except herself. If the baby has considerable mucus in its pharynx, it is kept in the central nursery until this had cleared and respiration is normal, but in not a few instances the baby is at the mother's bedside within two to three hours after delivery. The principal reasons for undertaking this project were (1) fear of contagious disease in the central nursery—infectious diarrhea, impetigo and respiratory infection—and (2) the impossibility of maintaining an adequate staff of trained nurses. Another consideration was the thought that the separation of baby from mother prevailing in the modern hospital might be destructive of a natural and normal relationship. This system has satisfied the requirements for which it was set up. There have been no ill babies. The care of the baby has been simplified. The babies seemed contented and happy; they have gained rapidly in weight, and the percentage

of breast feeding has increased. The mothers have learned to take care of the baby from the first postpartum day on and have left the hospital capable of managing the ordinary problems of infant care. The plan seems to work particularly well in small wards where mothers can watch and teach one another and can be under the frequent observation of the nursing personnel.

American Journal of Ophthalmology, Chicago

32:1-173 (Jan.) 1949

Retrolental Fibroplasia in Premature Infants. W. Councilman and Ella U. Owens.—p. 1.
Practical Problems Pertaining to Presbyopia. J. E. Lebensohn.—p. 22.
Evaluation of Antihistaminic Drug in Experimental Uveitis. I. H. Leopold, W. Dean and H. Blazar.—p. 31.
Ocular Manifestations of Pemphigus Foliaceus. F. Amendola.—p. 35.
*Use of Sterile Refrigerated Pooled Human Vitreous in Living Eyes. M. H. Fritz.—p. 45.
Myokymia of Eyelids: A Suggestion as to Therapy: Preliminary Report. I. Givner and N. S. Jaffe.—p. 51.
Surgical Treatment of Retinal Detachment Without Retinal Tear: Prolonged Subretinal Drainage. A. de Roetth Sr.—p. 55.
Surgical Treatment of Retinal Detachment. J. P. Verdaguer.—p. 63.
Keratoplasty: I. Preliminary Report on Development of Instruments. O. S. Lee Jr. and L. Allen.—p. 71.
New Ocular Implants. D. G. Durham.—p. 79.
Pigmentary Glaucoma: A Rare Clinical Entity. H. S. Sugar and F. A. Barbour.—p. 90.
New Classification of Nonparalytic Strabismus. S. V. Abraham.—p. 93.
Binasal Hemianopsia: Report of 2 Cases. M. B. Raiford.—p. 99.
*Anthrax of Eye. H. D. Barnshaw and J. C. Lovett.—p. 106.
Refractive Treatment of Asthenopia P. W. Miles.—p. 111.

Use of Pooled Human Vitreous.—Fritz deals with the injection into the living human eye of pooled vitreous withdrawn from human eyes and sent to the laboratory of the Eye-Bank for Sight Restoration, Inc., as material for use in the operation of corneal grafting. He describes the technic of the collection of vitreous and the determination of its sterility. He also presents the histories of 5 patients in whom pooled vitreous was employed. He stresses that the aspiratable portion of the vitreous of enucleated human eyes may be pooled and kept indefinitely under sterile conditions with no gross change in its physical properties. If withdrawn under aseptic conditions from donor eyes, the surfaces of which may be contaminated with bacteria, it remains sterile. This pooled material may be injected into the human eye without fear of bacterial contamination. The indications for this operation are loss of tone following retinal detachment, cataract extraction, injury or other reasons, and as a substitute for the aspiratable portion of cloudy vitreous in a patient's eye when more conservative means fail to bring about clearing after a reasonable period of time. The further use of eye banks for the collection and storage and for the distribution of pooled vitreous to qualified ophthalmologists in addition to the original function of processing usable corneal material is apparent.

Anthrax of the Eye.—Barnshaw and Lovett say that owing to the fact that there are many leather industries in Southern New Jersey anthrax is occasionally observed. Lovett has seen 90 cases of anthrax at the Camden Municipal Hospital since 1924. There were 7 cases involving the eyes among these 90 cases; 2 of them were associated with malignant edema and 5 with malignant pustule. None of the patients with eye involvement died. The authors present the history of a patient who had worked on goat skins. The lower lid of the left eye started to swell on February 11. The swelling had increased greatly by the next morning, extending down over the cheek. The patient was hospitalized on February 12, and treatment with penicillin was ordered at once. The patient was given 30,000 units of penicillin every four hours. He received a total of 2,500,000 units. Local treatment consisted of ice compresses, boric acid ointment to the lower lid and penicillin drops. On March 1, 1947, vision was practically normal in each eye. There was a large eschar of the lower left lid which extended along the entire lid margin. The eschar slowly loosened, leaving a raw area. Ectropion developed and a tarsorrhaphy was performed. Later, Snellen sutures were placed, but proved unsuccessful to relieve the ectropion. A skin graft took successfully, but even after this there was a moderate ectropion. In July the ectropion had completely disappeared. There was only a slight amount of sagging of the lower lid.

American Journal of Physiology, Baltimore

155:1-140 (Oct.) 1948. **Partial Index**

Electrophrenic Respiration. S. J. Sarnoff, Esther Hardenbergh and J. L. Whittenberger.—p. 1.
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Effects of Pituitary Growth and Adrenocorticotropic Hormones on Urinary Glucose and Nitrogen of Hypophysectomized Diabetic Rats. L. L. Bennett.—p. 24.
Effect of Parenteral Administration of Glucose and Protein Hydrolysate of Food Intake In Rat. H. Janowitz and M. I. Grossman.—p. 28.
Effect of Parathyroid on Renal Tubular Reabsorption of Phosphate and Calcium. I. Jahan and R. F. Pitts.—p. 42.
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Effects of Repeated Oral Doses of Quinine and Quinidine on Blood Pressure and Renal Circulation of Dogs with Experimental Neurogenic Hypertension. E. P. Hiatt.—p. 114.
Blood Pressures of Rats Subjected to Auditory Stimulation. Eleanor H. Yeakel, H. A. Shenkin, A. B. Rothballer and S. McD. McCann.—p. 118.
Asystolic Arterial Pressure Gradient as Measure of Local Peripheral Resistance. A. H. Williams and H. A. Schroeder.—p. 132.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

60:723-878 (Dec.) 1948

Fifty Years of Radium. Edith H. Quimby.—p. 723.
Achievement of Radium in Fight Against Cancer. S. Cade.—p. 731.
Concept of Clinical Use of Radium. A. N. Arneson.—p. 741.
Effective Dosage Levels in Interstitial Radium Therapy. B. Jolles.—p. 745.
Treatment of Advanced Cancer Involving Ear. C. L. Martin and J. A. Martin.—p. 750.
*Malignant Tumors of Cheek in Children: Report of 2 Cases. G. E. Ward and E. R. Shipley.—p. 758.
Cancer of Lower Lip: Survey of End Results of Treatment; All Cases Treated at Brooklyn Cancer Institute 1930 Through 1944. W. E. Howes and J. Rosenstein.—p. 763.
Surgical and Radiation Treatment of Cancer of Breast. R. B. Engelstad.—p. 776.
*Complications Following Use of Low Intensity, Long Radium Element Needles in Treatment of Cancer of Cervix Uteri. G. W. Waterman and E. M. Tracy.—p. 788.
Postirradiation Ulcerations of Uterine Cervix. H. W. Jacox.—p. 795.
Treatment of Cancer of Penis at Norwegian Radium Hospital. R. B. Engelstad.—p. 801.
Carcinoma of Anal Canal: Statistics of Fondation Curie, Paris. J. L. Roux-Berger and A. Ennuyer.—p. 807.
Applications of Artificially Radioactive Isotopes in Therapy. I. Cobalt.[60] W. G. Myers.—p. 816.
Cancer Detection Centers: Their Role in Cancer Control. J. R. Andrews.—p. 824.
Criteria for Reporting End Results. Eleanor J. MacDonald.—p. 832.
Preparation of Radon Vaseline Ointment. E. L. Harrington.—p. 836.

Malignant Tumors of Cheek in Children.—Ward and Shipley report 1 case of a malignant anaplastic tumor of the right antrum in a Negro girl aged 4, and 1 case of a low grade malignant tumor arising from aberrant salivary tissue in a white female infant aged 8 months. The older child received a large and early course of radium therapy. Nineteen platinum iridium needles, each containing 2 mg. of radium element, were implanted into the tumor and left in place for 157 hours, giving a total dose of 2,993 milligram-hours, or 7 threshold erythema doses. The dose was a necrotizing one and has caused considerable deformity of the eyelid and upper lip, but with one or more plastic procedures a good cosmetic result is to be expected. The patient has had no recurrence and is living a normal life and is doing well in school five years later. The second patient received a relatively small dose of radiation (200 r per day for a total of 1,800 r), but the process continued and caused the death of the child. The favorable result obtained in the first case was due to the localized nature of the tumor, the early use of a large dose of radium and the sensitivity of the tumor to radium. Although salivary tumors of the cheek are rare, the possibility of their occurrence should be recognized and early therapy instituted.

Treatment of Cancer of Cervix Uteri.—Waterman and Tracy treated 489 of 621 patients with carcinoma of the cervix uteri, seen and examined at the tumor clinic of the Rhode Island Hospital during the period 1926 to 1941, with long

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radium element needles. The gross mortality for the 621 patients was 12 (2 per cent) and for the cases treated with radium needles it was 11 (2.2 per cent). All of these deaths were of patients with advanced disease and in anemic, debilitated and often septic states. All occurred before 1938. The fact that there was no immediate mortality from 1937 through 1946 except 1 death from embolism, which occurred on the ninth day, suggests that needles were not responsible for immediate mortality. When radium needles alone were used as the primary treatment in 258 cases, no fistulas occurred in stages I and II, and for all stages the incidence was 3.1 per cent. In 8 (10.4 per cent) of the 77 retreated patients, fistulas developed, showing the increased liability to such damage following retreatment. There seems to be a decided increase in incidence of fistulas when a combination of interstitial needles and external irradiation is used, as in the remaining 231 cases, the incidence rising from 3.1 per cent to 6.1 per cent in the primary group and from 10.4 to 18.5 per cent in the retreated group. Urinary complications other than fistulas occurred in 19 patients (3.8 per cent). Intestinal complications, fistulas not included, occurred in 16 patients (3.3 per cent). Severe inflammatory pelvic reactions occurred in 6 patients (1.2 per cent). The incidence of these complications has not exceeded that reported by other clinics using other methods. In the authors' experience, interstitial irradiation by the long radium element needles has been relatively a safe method because of the wide distribution of these weak sources, by which a more uniform irradiation of high total dosage has been attained.

Am J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

33:1-100 (Jan.) 1949

*Penicillin Syphilotherapy Administered Prior to Pregnancy: Study of 111 Pregnancies During Which Additional Antisyphilitic Treatment was Withheld. H. A. Tucker.—p. 1.
Therapeutic Efficacy of Penicillin G in Experimental Syphilis Produced by Five Different Strains of Treponema Pallidum. Ruth A. Boak and C. M. Carpenter.—p. 8.
Results of Nationwide Study of Penicillin in Early Syphilis. (Report of Central Statistical Unit): I. Amorphous Penicillin in Aqueous Solution. Margaret Merrell.—p. 12.
Id.: II. Amorphous Penicillin Versus Crystalline Penicillin G, and Aqueous Penicillin Versus Penicillin-Oil-Beeswax. R. V. Rider.—p. 19.
Observations on Patients with Early Syphilis Treated with Penicillin in Various Vehicles and by Oral Method. A. Cohn, T. Rosenthal and I. Grunstein.—p. 27.
Osteomyelitis of Skull in Early Syphilis: Report of 2 Cases Probably Influenced by Trauma. R. G. Thompson, C. L. Leedham and H. Hailey.—p. 34.
Cardiovascular Syphilis: Summary of Recent Information with Special Reference to Treatment with Penicillin. J. E. Moore.—p. 43.
Extradural Hemorrhage Following Lumbar Puncture: Report of Case. S. Olansky.—p. 56.
Streptomycin Therapy in Case of Sulfonamide-Resistant Hemophilus Ducreyi (Chancroid) Infection. W. D. Weber, J. H. Williams and T. R. Huffines.—p. 58.
Skin Reaction of Patients to Donovania Granulomatis. C. H. Chen, R. B. Dienst and R. B Greenblatt.—p. 60.
Streptomycin Therapy of Granuloma Inguinale. J. J. Stewart and W. E. Laur.—p. 65.
Diagnostic Tests in Granuloma Inguinale. H. Packer and A. D. Dulaney.—p. 68.
*Ambulatory Treatment of Granuloma Inguinale with Streptomycin. A. Jacoby, T. Rosenthal and N. Sobel.—p. 76.
Is Gonorrhea Control a Public Health Function? M. R. Kiesselbach.—p. 80.
So-Called Penicillin-Resistant Gonococcal Infections, A Clinical and Laboratory Study. A. Cohn, I. Grunstein, Ruth Goldberg and Jean Crane.—p. 86.

Penicillin Syphilotherapy Prior to Pregnancy.—Tucker feels that it is important to know whether penicillin is required during each pregnancy in women who have received penicillin syphilotherapy. He reports 111 pregnancies during which syphilotherapy was withheld in 88 women treated with penicillin prior to these pregnancies. The original diagnosis in 72 of these patients had been primary and/or secondary syphilis and, in the remainder, early latent or early asymptomatic neurosyphilis. With one exception, all were given aqueous penicillin solution intramuscularly every two or three hours for 7.5 to 15 days and the majority received 3,000,000 units or more. Monthly clinical and serologic examinations were carried out throughout each pregnancy. Thirty mothers of healthy children were seropositive in low and constant titer at the time of delivery. The only congenitally syphilitic child was one born of an uncooperative, seropositive mother who was not seen during this pregnancy and who was delivered at home. It is concluded that amounts of penicillin in excess of 2,400,000 units, to which the syphilitic pregnant or nonpregnant woman has responded satisfactorily, are sufficient to guarantee healthy offspring in subsequent pregnancies, provided that relapse and/or reinfection do not occur.

Streptomycin in Ambulatory Treatment of Venereal Granuloma.—Jacoby and his associates review observations on 37 patients with venereal granuloma, who were treated in the outpatient clinic with intramuscular injections of streptomycin in either an oil-beeswax mixture or an aqueous solution on each of seven to twelve consecutive days, omitting Sundays. Adequate blood levels were obtained for at least twenty-four hours. The majority of patients showed prompt symptomatic improvement. Two of this group failed to return for final evaluation, and one is still under treatment. Thirty-two of the remaining 34 were eventually cured, 28 of these after primary treatment and 4 after retreatment following relapse. Two are still not cured. Although this number is not sufficient for final conclusions as to value of this therapy, the high percentage of primary cures and retreatment cures after relapse shows a sufficiently favorable trend to indicate that this is a valuable therapeutic measure in granuloma inguinale. Equally favorable results in hospitalized patients reported by other investigators support this conclusion. A daily dose of 3 Gm. of streptomycin for seven to twelve consecutive days injected intramuscularly in ambulatory patients is a satisfactory method of treatment for granuloma inguinale.

American Review of Tuberculosis, New York

58:583-709 (Dec.) 1948

Pathogenesis of Minimal Pulmonary Tuberculosis: Study of 1,225 Necropsies in Cases of Sudden and Unexpected Death. E. M. Medlar.—p. 583.
Minimal Pulmonary Tuberculosis: Its Significance in Relation to Age of Patient. R. Chang.—p. 612.
Phrenic Nerve Interruption in Treatment of Pulmonary Tuberculosis: Statistical Analysis of Results in 398 Patients at Trudeau Sanatorium from 1925 through November 1947. R. S. Mitchell.—p. 619.
Percentage of Permanent Diaphragmatic Paralyses Following Phrenicotripsy. J. T. Hardy Jr., W. H. Bergstrom and R. H. Browning.—p. 646.
Psychologic Concomitants of Pulmonary Tuberculosis. G. W. Albee.—p. 650.
Relationship Between Phagocytic Cells and Human Tubercle Bacilli. H. Bloch.—p. 662.
Effect of Iron on Experimental Tuberculosis. R. G Bloch, G. Gomori and Marjorie Sperry-Braude.—p. 671.
*Prevention of Primary Tuberculous Infections in Medical Students: Autopsy as Source of Primary Infection. G. M. Meade.—p. 675.
*Tuberculosis Among Philadelphia Foodhandlers. Katharine R. Boucot and M. J. Sokoloff.—p. 684
"Mycobacterium Tuberculosis No. 607" and Similar Doubtful Tubercle Bacilli: Review. W. C. Tobie.—p. 693.

Tuberculosis in Medical Students.—Meade says that the occurrence of several cases of clinical pulmonary tuberculosis in the student body of the University of Rochester School of Medicine prompted a study to determine the sources of infection. An intensive tuberculin testing program revealed that the majority of primary infections (as evidenced by tuberculin reaction conversions to positive) were occurring during the second academic year. Because contact with tuberculous tissues during the course in pathology seemed to be the most likely source of infection during the second year, all participation in tuberculosis autopsies and handling of tuberculous tissues by second year students were eliminated. Prior to this change of policy the average percentage of positive reactors in each class at the end of the first year was 54.2, and by the end of the second year it was 92. Following this change of policy the average percentage of positive reactors in each class at the end of the first year was 36.4; by the end of the second year it was 38.8, and by the end of the fourth year it was only 51.9. It may be argued that tuberculous infection in physicians is inevitable, that primary infections in young adults are innocuous and self limited and therefore preventive efforts are pointless. While it is true that some of the students who succeed in graduating with negative tuberculin reactions may acquire

infections later on in hospital residency or practice, it seems possible that the chances of this late infection, particularly after the hospital residency period, are less than during the undergraduate period. Studies are now in progress on the students who were tuberculin negative at graduation and who have remained for resident training. In 14 such persons followed for periods up to three years there has been only one conversion. This occurred in a pathology intern. Treatment with BCG might be advisable in exposed persons. Primary infections in young adults are not always innocuous and self limiting. The view is becoming more prevalent that the majority of cases of pulmonary tuberculosis are a direct consequence of late primary infection. If it is possible to avert the occurrence of even a very few such progressive, destructive lesions in young physicians, efforts to prevent primary infection are worth while.

Tuberculosis Among Food Handlers.—According to Boucot and Sokoloff annual physical examination is a requirement for licensure of about 43,000 food handlers in Philadelphia. In January 1947 the Division of Tuberculosis of the Department of Health inaugurated a program of annual chest roentgenograms on all food handlers. All physicians registered to examine food handlers were notified that, after completion of their examination it would be their duty to instruct the food handlers to present themselves to the food handlers' roentgenographic station, where a photofluorogram would be taken without charge. No food handler's certificate is valid unless the date of the chest roentgenogram is officially marked thereon. The authors stress that of 771 food handlers whose survey films were interpreted as tuberculous, subsequent clinical reports were available on 81 per cent after a period of follow-up varying from one to ten months. These reports confirmed the presence of tuberculosis in 76 per cent. Annual roentgenographic chest examinations in Philadelphia food handlers has proved practicable. It has resulted in the recommendation for hospitalization of 66 persons with active tuberculosis. This represents 0.25 per cent of the food handlers examined roentgenographically. Mass radiography is not merely a case-finding technic, but is a powerful method of education for both lay and professional groups.

Archives of Internal Medicine, Chicago

81:605-792 (May) 1948

Periarteritis Nodosa: Case of Fatal Exfoliative Dermatitis Resulting from "Dilantin Sodium" Sensitization. J. J. Van Wyk and C. R. Hoffmann.—p. 605.
*Food Protein Consumption in Glomerulonephritis: Effect on Proteinuria and Concentration of Serum Protein. E. C. Persike and T. Addis.—p. 612.
Complement Fixation Reactions in Psittacosis. D. J. Davis.—p. 623.
Paroxysmal Cold Hemoglobinurias. R. M. Becker.—p. 630.
Impairment of Pulmonary Function in Poliomyelitis: Oximetric Studies in Patients with Spinal and Bulbar Types. J. O. Elam, A. Hemingway, G. Gullickson and M. B. Visscher.—p. 649.
Cirrhosis Following Infectious Hepatitis: Report of Five Cases, in Two of Which There Was Superimposed Primary Liver Cell Carcinoma. W. H. Sheldon and D. F. James.—p. 666.
*Massive Picrotoxin Therapy in Treatment of Acute Barbiturate Poisoning. E. A. Newman and M. Feldman Jr.—p. 690.
Allergy: Review of Literature of 1946 and 1947. F. M. Rackemann.—p. 696.
Gastroenterology: Review of Literature from July 1946 to July 1947 (Concluded). J. B. Kirsner, W. L. Palmer, W. E. Ricketts and others.—p. 746.

Glomerular Nephritis.—Persike and Addis placed 2 male patients, aged 63 and 25, who were in the degenerative stage of glomerular nephritis, excreted large quantities of protein in their urine, had low concentration of serum protein and were edematous, on a diet containing adequate calories and vitamins and a carefully calculated amount of protein for four and three weeks respectively. The protein content of the diets was varied at weekly intervals and ranged from 0.2 Gm. to 2.5 Gm. of protein per kilogram of body weight. When the dietary protein was increased the proteinuria was augmented in both patients. Decreasing the amount of dietary protein resulted in a diminished proteinuria. Raising the protein intake above 0.5 Gm. of protein per kilogram of body weight did not increase the concentration of serum protein. During the week when the food protein consumed by patient 2 was reduced to 0.2 Gm. per kilogram of body weight, an inadequate amount, the concentration of serum protein diminished. It appears that the changes in proteinuria which occur when the dietary protein is altered are dependent not only on glomerular permeability and the rate of glomerular filtration, but also on the rate of tubular reabsorption of protein. The increased proteinuria may further tax the protein-reabsorptive ability of the tubule cells, this capacity already having been exceeded. The loss of protein in the urine may place an added burden on the mechanism by which plasma proteins are produced. Patients who have lost renal tissue should eat a minimum but adequate amount of protein, which as a rule should consist of 0.5 Gm. of protein per kilogram of body weight per day, plus an increment equal to that amount of protein lost in the urine.

Barbiturate Poisoning.—Eleven patients with severe barbiturate poisoning Newman and Feldman treated with massive doses of picrotoxin. Amounts ranging from 9 to 45 mg. per dose were given intravenously at fifteen-minute intervals. The total dose of the drug administered was 5,139 mg. in one case and 14,196 mg. in another case, much larger doses than those usually recommended. The amount of picrotoxin given must be varied according to the depth of coma, which can be judged not only by the amount of intoxicant ingested and the time elapsed before treatment is instituted, but also by the patient's response to the previous dose of picrotoxin. Pentamethylenetetrazol is a valuable aid in the estimation of the depth of coma. There is no toxic dose of picrotoxin until a preconvulsive state is reached. After the patient begins to respond to smaller and smaller doses of picrotoxin with preconvulsive twitchings, indicating an awakening of lower brain centers, therapeutic stimulation of the cortex by amphetamine is indicated, since picrotoxin is not primarily a cortical stimulant. Maintenance of fluid balance, constant vigilance in keeping the air passages clear and immediate administration of antibiotic substances to help prevent pulmonary infection are necessary if the analeptic agents are to have a chance to reverse the intoxication. Bronchopneumonia developed in 4 of the patients while they received penicillin; 1 patient had a complicating encapsulated empyema, which responded to local instillations of penicillin into the thoracic cavity. Ten patients recovered and 1 patient died. Treatment should in all cases be continued by placing the patient in the hands of a psychiatrist.

Archives of Pathology, Chicago

46:87-190 (Aug.) 1948

*Diffuse Angiectasis of Cerebral Meninges of Newborn Infant: Report of Three Cases. Edith L. Potter.—p. 87.
Specific Gravity of Blood Corpuscle: Its Possible Significance in Atherosclerosis. I. Gordon.—p. 97.
*Influence of Local Acidification of Tissue Bordering Cancerous Growths with Special Reference to Eosinophil, Paneth Cell and Acidophilic Plasma Cell. C. E. Black and R. S. Ogle.—p. 107.
Postmortem Examination of Teeth and Supporting Structures to Aid in Personal Identification. M. J. Van Lecuwen.—p. 119.
Control of Hepatic Coccidiosis of Rabbits with Succinylsulfathiazole U.S.P.: Study of Mode of Action of Sulfonamides. M. Gerundo.—p. 128.
Significance of Agonal Changes in Human Liver. H. Popper.—p. 132.
Mechanisms of Leukopenia with Inflammation: Additional Leukopenic Factor Found in Alkaline Exudates. V. Menkin.—p. 145.
Significance of Beta Granules in Islets of Langerhans of Pancreas. S. S. Barron.—p. 159.
Nucleic Acids and Cytologic Changes in Regenerating Rat Liver. R. E. Stowell.—p. 164.
Mitotic Activity in Aortic Lesions of Experimental Cholesterol Atherosclerosis of Rabbits. G. C. McMillan and G. L. Duff.—p. 179.

Meningeal Angiectasis of Newborn.—Potter reports 3 newborn infants with an abnormality of development in the meningeal vessels over the entire surface of the brain. The vessels were similar to those found in localized lesions in older persons which have been described under the name of meningeal angioma. The infants had a generalized involvement of all meningeal vessels, producing a diffuse angiectasis in the cranial meninges. It seems more than coincidence to the author that this abnormality of cerebral vessels has been observed on three occasions in infants who also had abnormalities of cardiac development. Could it be that the heart hypertrophied in order to supply the increased vascular bed in the meninges, or could the hypertrophy of the heart have caused a sufficient increase

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in cardiac output and pressure to be responsible for hyperdevelopment of the meningeal vessels? In either instance one would expect the arterial system to be as involved as the venous, but in all 3 infants the arteries appeared normal. It is interesting to speculate on the symptoms that would have been produced by this great increase in meningeal vessels had the infants survived. The fact that it is not a condition recognized in later life suggests that it may be incompatible with continued existence and that all those affected die in early infancy.

Acidification of Tissue Bordering Cancers.—Black and Ogle present photomicrographs showing eosinophilic cell, Paneth cell and acidophilic plasma cell reactions about carcinoma of the gastrointestinal tract. Local acidification of the tissue was found where these three groups of cells were increased, as indicated by the eosinophilic reaction of the tissue. Carcinoma cells were shown to be fragmenting and disintegrating in these acidophilic areas. It is concluded that local acidification of the tissue is a defensive response of the host. It seems plausible that the eosinophils, the Paneth cells and the acidophilic plasma cells commonly occurring in the small intestine and the appendix could be an important factor in explaining why cancer is so uncommon and tends to grow so slowly and metastasize so late in this region of the gastrointestinal tract. The large numbers of acidophilic cells occurring in the region of the pyloric fold may explain why carcinoma of the pylorus of the stomach seldom extends beyond the pyloric fold into the duodenum.

Bulletin of Johns Hopkins Hospital, Baltimore

84:1-100 (Jan.) 1949

Occurrence of Pleuropneumonia-Like Organisms in Material from Postpartum Uterus; Simplified Methods for Isolation and Staining. Isabelle G. Schaub and J. A. Guilbeau.—p. 1.
*Subungual Hemorrhages and Hyperkeratoses Due to Everon. M. Sullivan. —p. 11.
Recollections of William Stewart Halsted: A Great Surgeon. S. J. Crowe.—p. 15.
Penicillin in Treatment of Early Syphilis Complicating Hemophilia: Report of Case Treated with 48 Million Units of Oral Penicillin G. Minerva S. Buerk and H. A. Tucker.—p. 24.
Studies on Proteolytic Enzyme in Human Plasma: IV. Rate of Lysis of Plasma Clots in Normal and Diseased Individuals, with Particular Reference to Hepatic Disease. O. D. Ratnoff.—p. 29.
*Some Manifestations of Reflex Activity in Spinal Man with Particular Reference to Occurrence of Extensor Spasm. R. A. Kuhn and M. B. Macht.—p. 43.
Physiologic Studies in Congenital Heart Disease: VII. Pulmonary Arterial Hypertension in Congenital Heart Disease. H. E. Griswold, R. J. Bing, J. C. Handelsman and others.—p. 76.

Subungual Hemorrhages and Hyperkeratoses.—Sullivan says that at the 1948 meeting of the American Dermatological Association several members from different sections of the United States reported a new entity affecting the finger nails. It is caused by the application of cosmetic preparations which are applied to the surface of the nail prior to the application of the lacquer to insure the adherence of the lacquer. Sullivan reports the case of a woman, aged 42, who, after the first application of a base coat under the regular polish, experienced a painful sensation under one finger nail. A week later another application of the base coat and nail polish was made, and that night and for several days thereafter she experienced increasing pain. When she removed the nail polish she noted a purple-brown discoloration under all of the nails. A lighter brown material had accumulated above the discolored area, beneath the nail. This material grew upward and pushed itself above the edge of the nail. Several physicians regarded the disorder as onychomycosis. Many scrapings of the material beneath the nails and cultures on Sabouraud's medium failed to support the diagnosis, and treatment for fungus infection of the nails was ineffective. She consulted the author nine weeks after the onset. He obtained no reaction to patch tests from the nail polish, but there were positive reactions to the used base coat, as well as to three other brands of base coats and to the rubber solution that is one of the ingredients of the base coats. The patient was advised to avoid further application of the base coat. Application of compresses of boric acid solutions under finger cots for one hour resulted in softening and maceration of the hyperkeratotic material, making it possible to cut away a small amount of the protruding hyperkeratosis and to trim the nails. With this simple treatment there was symptomatic relief, and in five weeks the brown bands had grown upward and the hyperkeratotic material had been appreciably reduced. It is probable that the nail bases, when applied, are not confined precisely to the outside of the nail and that small quantities of the liquid spill behind the nail and gain access to the under surface. The author believes that if the condition remains unrecognized the patient is likely to continue the use of the nail base in an effort to cover up the unsightly appearance of the nails and thus further aggravate the condition. When the condition is severe, there is often excruciating pain, and surgical removal of the nails may become necessary.

Reflex Activity in Spinal Man.—Kuhn and Macht say that long survival when there has been complete severance of the cord has been rare until the recent world conflict with its large number of casualties from high velocity missiles. They studied the involuntary activity patterns of skeletal muscles innervated below the level of lesion in 27 verified cases of complete spinal cord transection. Observations were made on men who had survived for twenty-four to forty-two months. The levels of transection ranged from the second through the twelfth dorsal vertebra. During the periods of observation 2 patients exhibited flexor spasms alone; 2 showed approximately equal flexor and extensor spasms, and 18 displayed predominant extensor spasms. Five patients were completely flaccid below the level of the lesion. The most typical progression of reflex activity following spinal cord transection in this series of patients was: spinal shock, minimal reflex activity, flexor spasms, alternating flexor and extensor spasms and predominant extensor spasms. The length of time that different subjects remain in a given stage varies considerably. In general, stage 1 lasts for one to six weeks; stages 2 and 3, six weeks to one year; stage 4 rarely begins prior to four months after injury, and usually is terminated within one year, and stage 5 may appear as early as six months after the injury and may continue indefinitely. Extensor thrust is not common, but can be elicited occasionally in spinal man. "Spinal standing," similar to that seen in animals with transected cords, can occur in spinal man. Sustained patellar and ankle clonus frequently occurs in chronic spinal man. Primary extensor manifestations in chronic spinal man probably represent the reappearance of primitive and poorly integrated postural activity mediated by the isolated cord, the functional capacity of which seems greater than has been assumed. Although spinal man passes through a period in which flexion reflexes alone are active, he may frequently progress to a stage of activity characterized by predominantly extensor reflexes, amounting in many cases to extensor spasm. It is probable that many of the discrepancies between these observations and those of earlier investigators can be explained by the increased duration of life and, secondarily, by the better physical conditions of present day spinal men.

Canadian Medical Association Journal, Montreal

59:505-608 (Dec.) 1948. **Partial Index**

Old Age from Psychiatric Viewpoint. A. B. Stokes.—p. 518.
Lupus Vulgaris and Vitamin D_2. E. Gaumond.—p. 522.
*Treatment of Pneumococcal Meningitis. J. Kershman and E. Peterson. —p. 527.
*Prevention and Treatment of Postoperative Pulmonary Complications by Bronchial Aspiration. R. Orange.—p. 531.
Intravenous Procain—Clinical Applications. R. A. Gordon.—p. 534.
Changing Status of Industrial Medicine. W. H. Cruickshank.—p. 536.
Significance and Management of Fibromyomata Complicating Pregnancy. A. E. Trites.—p. 539.
Medical Problems in Fitting Modern Hearing Aids. W. J. Pothoven. —p. 544.
Community Psychiatric Developments in Saskatchewan. D. G. McKerracher.—p. 546.
Pancreatic Pseudocyst. L. P. Moasseau and S. Kling.—p. 550.
Polyostotic Fibrous Dysplasia of Bone. H. Brook.—p. 555.
Anesthesia for Obstetrics. A. MacMillan.—p. 557.
Standardization of Lewis Method of Venous Pressure Determination. P. Allen.—p. 560.

Treatment of Pneumococcic Meningitis.—Kershman and Peterson report 12 cases of pneumococcic meningitis treated during the last eighteen months at two Montreal hospitals. The ages of the patients ranged from 2 months to 73 years. Sulfonamide drugs and penicillin were employed in all patients.

In 9 patients sulfadiazine was given in a dosage of 2 Gm. initially and 1 Gm. thereafter every four hours. In 4 instances, soluble sulfadiazine or sulfathiazole was given intravenously or intramuscularly because the patients were not able to take oral therapy. The intramuscular dosage of penicillin varied from 5,000 to 100,000 units every three hours, the average dose being 30,000 units. In 9 of the 12 patients penicillin was also given intrathecally, and in 1 instance intraventricularly. The 1 death that occurred in this series was in a 73 year old man, who was improving clinically from his meningitis but died of bronchial obstruction caused by the aspiration of mucus and sanguineous discharge which accumulated immediately after a simple mastoidectomy and endonasal antrotomy. In 1 patient transverse myelitis developed after the intrathecal injection of penicillin. This patient also suffered intellectual deterioration, presumably the result of cerebral damage arising from his infection. The authors feel that a successful outcome in the treatment of his condition depends on the intrathecal as well as intramuscular use of penicillin and especially on early and radical treatment of the underlying focus of infection. The latter is usually found in the sinuses and mastoids.

Bronchial Aspiration.—According to Orange the most common postoperative pulmonary complication is atelectasis. This may occur as a massive lobar or lobular collapse, the latter resembling bronchopneumonia in the roentgenogram. The cause of postoperative atelectasis is usually some mechanical obstruction, such as the plugging of one or more bronchi by inflammatory exudate, thick tenacious purulent material, foreign bodies, blood, mucus, tumor or vomitus. The most critical time for the development of atelectasis is the first twelve hours postoperatively. Hypoventilation from intercostal paralysis, change in diaphragmatic action and postoperative muscle splinting due to pain, and respiratory depression due to excessive sedation are factors in its development. Chronic atelectasis may lead to lung abscess, bronchiectasis or suppurative pneumonitis. The anesthetist-bronchoscopist can prevent postoperative pulmonary complications by establishing adequate pulmonary ventilation and endobronchial drainage. Aspirated foreign material in the tracheobronchial tree should be removed bronchoscopically while the patient is still anesthetized and oxygen used liberally postoperatively. Early bronchoscopic aspiration of the postoperative atelectatic lung will usually be rewarded by a dramatic result. Posteroanterior and lateral roentgenograms, taken in suspected cases in which there may be only a slight rise in temperature, may show small areas of atelectasis which, without spontaneous cure in a few hours, should be subject to aspiration bronchoscopy. Temperature, pulse and respiration drop rapidly to normal levels soon after the bronchial tree is clear of secretions and the lung properly aerated.

Cincinnati Journal of Medicine

30:1-58 (Jan.) 1949

Treatment of Diabetes Mellitus: The Controversy of the Past Decade. E. Tolstoi.—p. 1.
Acute Nephritis in Childhood. Katharine Dodd.—p. 8.
*Simulation of Multiple Sclerosis and Other Degenerative Diseases of Spinal Cord by Herniation of Cervical Intervertebral Disks. P. C. Bucy.—p. 16.

Simulation of Multiple Sclerosis by Herniation of Cervical Disks.—Bucy points out that the degenerative diseases of the spinal cord, such as multiple sclerosis, primary lateral sclerosis and amyotrophic lateral sclerosis, are progressively disabling diseases for which there is no known treatment. It is of the greatest importance, therefore, to recognize other conditions with similar symptoms which can be relieved by appropriate treatment. Median herniation of a cervical intervertebral disk is such a condition. It is not a common occurrence and presumably it is generally due to injury of the cervical portion of the spine. In some cases there have been well authenticated injuries such as striking the head on the bottom or side of a swimming pool in diving, automobile accidents, falls on the head, neck and shoulder, etc. In many cases no specific injury or accident can be determined. The median herniations are usually found between the fifth and sixth or the sixth and seventh cervical vertebrae. They are of two types: those which lie in the midline and give rise to a symmetric disturbance which is largely confined to the lower extremities and those lying a short distance lateral to the midline and compressing one side of the spinal cord. The second, less common, type gives rise to the neurologic picture known as the Brown-Sequard syndrome. The outstanding symptoms of a central herniation of a cervical intervertebral disk are muscular spasticity in the lower extremities and disturbance of equilibrium. The spasticity is out of all proportion to the muscular weakness. Patients presenting a typical picture of multiple sclerosis with relapses and remissions, multiple areas of involvement in the central nervous system, attacks of retrobulbar neuritis, diplopia and scanning speech present no diagnostic problem, but in patients with a spastic paraplegia and a disturbance of gait, with little or no involvement of the upper extremities and no abnormalities in the domain of the cranial nerves, median herniation of a cervical intervertebral disk should be considered. With these herniations conservative treatment is worse than useless. Only prompt removal is effective. Delay only aggravates the condition and may so damage the spinal cord that removal at a later date is ineffective.

Delaware State Medical Journal, Wilmington

21:1-23 (Jan.) 1949

Blood Transfusions and Transfusion Reactions. W. W. Moore and J. W. Howard.—p. 1.
Needle Biopsy of Liver: A Preliminary Report. A. J. Morris Jr. and J. K. Harvey.—p. 6.
*Problem of Squint in Children. D. G. Durham.—p. 12.
Post-Anesthesia Room. R. D. Sanders, J. J. Graff, J. P. Aikins and Jean B. Cooling.—p. 14.

Squint in Children.—Durham points out that frequently a mother consulting the ophthalmologist for the treatment of a squint in an older child will remark that the visit was delayed because the family physician assured her that the child would outgrow the deformity. Such advice is not compatible with present day teachings. From the psychologic standpoint alone, early correction of a squint is indicated, if possible, before the age of 4 to 5 years. Correct refraction with cycloplegia is the first requisite. Retinoscopy will often reveal a high hyperopia, or farsightedness, and the wearing of glasses will often reduce the deviation or relieve it. If there is subnormal vision in the squinting eye, glasses alone will not restore it, but occluding the better eye and thus forcing the use of the poorer eye will be helpful. Occlusion, to be effective, must be total and continuous for weeks at a time. When vision of better than 20/70 is obtained in the squinting eye, orthoptic treatment may be commenced. Orthoptics is the functional part of the cure for squint, aimed at teaching fusion or the binocular use of the eyes. If the squint is of low degree, it is possible that with the adequate development of fusion, surgery can be avoided. However, even if fusion is obtainable in a squint of high degree, surgery will still be necessary to approximate ocular parallelism. Surgery is only used to obtain parallel visual axes. The surgical procedure has no effect on the visual acuity or the binocular coordination of the eyes.

Diseases of Chest, Chicago

15:1-124 (Jan.) 1949. **Partial Index**

Postmortem Pneumothorax. D. Salkin.—p. 1.
Pathogenesis of Primary Atypical Pneumonia. R. L. Fruin.—p. 24.
Significance of Pleural Effusions as Indicating Presence of Abdominal Disease. A. H. Aaron and L. J. Leaby.—p. 30.
Pneumoperitoneum and Phrenoclasia in Treatment of Pulmonary Tuberculosis: Therapeutic Observations in 550 White and Negro Cases. R. E. Moyer.—p. 43.
Differential Diagnosis and Treatment of Congenital Cystic Malformation of Lung. W. E. Adams.—p. 60.
*Pulmonary Embolism: Precipitating Factor of Acute Coronary Insufficiency. S. Dack, J. Stone, D. H. Paley and A. M. Master.—p. 72.
Diagnosis and Treatment of Acute Laryngotracheobronchitis. G. B. Logan.—p. 85.
Bronchography. D. Carr, E. F. Skinner, W. E. Denman and C. R. Kessler.—p. 92.
Cavity Closure Following Discontinuation of Ineffective Pneumothorax. W. J. Habeeb.—p. 97.

Pulmonary Embolism and Coronary Insufficiency.—According to Dack and his co-workers cardiac involvement following pulmonary embolism has been so commonly attributed to acute cor pulmonale that the fact that the left ventricle

may be affected as often as the right ventricle has been overlooked. They describe clinical and pathologic studies on 40 fatal cases of massive pulmonary embolism in which electrocardiograms were recorded following the embolism. They believe that acute coronary insufficiency plays as large a part as does cor pulmonale in the cardiac sequelae of embolism. Electrocardiographic changes attributable to coronary insufficiency occurred more often than the classical cor pulmonale pattern. They were more common in older patients with antecedent coronary sclerosis and cardiac enlargement, whereas the classical cor pulmonale pattern occurred most often in patients with normal coronary arteries and heart size. Focal subendocardial infarction of the left ventricle, in the absence of acute coronary occlusion, was found post mortem in 9 cases. This resulted from coronary insufficiency precipitated by the pulmonary embolism in patients with antecedent coronary disease and cardiac hypertrophy who had sustained recurrent emboli. The precipitating factors of coronary insufficiency following pulmonary embolism were anoxemia, shock, right ventricular strain and reflex coronary vasoconstriction. Of these, shock associated with diminished cardiac output and coronary blood flow was considered the most important. The authors conclude that acute coronary insufficiency may be the predominant factor underlying the electrocardiographic changes and myocardial involvement in pulmonary embolism, even when right ventricular strain exists.

Georgia Medical Association Journal, Atlanta

38:1-44 (Jan.) 1949

*Brachial Neuritis Due to Cervical Intervertebral Disk Lesions. E. Walker.—p. 1.
*Head Enlargement in Infants. C. E. Dowman.—p. 4.
Facial Palsies. W. A. Smith.—p. 8.
Maternity Services in Rural Areas. G. V. Rice.—p. 15.
Hematologic Problems and Their Management. J. C. Norris.—p. 17.
Cancer News. J. C. Norris.—p. 29.

Brachial Neuritis.—According to Walker rupture or herniation of a cervical intervertebral disk is the usual cause of pain which extends from the lower cervical portion of the spine into the upper extremity. The clinical picture is that of so-called brachial neuritis with pain involving one of the lower cervical nerve roots. The patient usually complains of pain over the suprascapular region, often radiating into the shoulder region and distally down the arm. If the nerve root is sufficiently damaged, there may be reflex or sensory changes, and these neurologic findings will be of considerable importance in determining which nerve root is involved and which disk is ruptured. Roentgen studies of the cervical part of the spine will aid in the diagnosis. In most cases the pain subsides spontaneously within a few days of conservative treatment consisting of rest and immobilization. Symtomatic therapy is given for the relief of pain. In the more persistent cases a cervical brace or even head traction may be useful. When the pain is severe and persists, surgical decompression of the nerve root is the treatment of choice.

Head Enlargement in Infants.—Dowman reports 1 case of internal hydrocephalus in a girl first seen at 19 days of age and followed up to 2 years of age; 1 case of communicating hydrocephalus in a boy seen first at 5 months of age and followed up to 26 months of age; 1 case of papilloma of the choroid plexus in an infant 1 month old who died three months after the removal of the tumor at the age of 4 months, and 1 case of meningomyelocele and bilateral subdural hematoma in a girl aged 2 days, with hematoma membranes removed at the age of 43 and 60 days, respectively. Routine maximum head measurements by means of a steel tape measure and comparison with a chart showing normal figures for girls and boys in the first year are recommended so that cases of head enlargement may be recognized early. Choroid excision offers the only hope for hydrocephalic patients, but the results are not dramatic. Subdural hematomas should be suspected in children with head enlargement who look intelligent, while the usual hydrocephalic patient does not look bright. Results of removal of the hematoma are rather favorable. Fontanel puncture offers considerable aid in the diagnosis of the nature of the head enlargement.

Illinois Medical Journal, Chicago

95:1-64 (Jan.) 1949

Vaginal Hysterectomy. R. A. Reis and E. J. DeCosta.—p. 15.
Surgical Treatment of Irradiation Injuries. M. L. Mason.—p. 20.
Treatment of Infection of Frontal Sinuses and Its Complications. M. F. Arbuckle.—p. 27.
Fluorine and Dental Caries. H. T. Dean.—p. 33.
Relation of Ascorbic Acid to Chronic Arthritis. E. F. Traut and F. L. Matousek.—p. 38.
Recent Advances in Surgical Treatment of Congenital Lesions of Heart and Great Vessels. W. E. Adams.—p. 40.
Frequency of Urination in Women. L. W. Riba.—p. 44.
*Fatal Menorrhagia in Thrombocytopenic Purpura: Report of 2 Cases and Brief Review of Literature. F. J. Walsh and J. J. Donlon.—p. 48.

Fatal Menorrhagia in Thrombopenic Purpura.—Walsh and Donlon report 2 cases of fatal menorrhagia, both in young women aged 18. In the first patient the postmortem anatomic diagnosis was primary thrombopenic purpura. In the second patient the anatomic diagnosis on postmortem examination was secondary thrombopenic purpura, septicopyemia with miliary abscesses in the kidney, serous pericarditis, cloudy swelling of the myocardium, bilateral fibrocystic disease of the ovaries and hemorrhagic cystitis. The authors emphasize that it is erroneous to consider all cases of menorrhagia, especially in the younger age groups, as due to complications of pregnancy, endocrine disturbances and pathologic changes in the uterus. Thrombocyte counts in these conditions should be as routine as red and white blood cell counts. Menorrhagia associated with blood dyscrasias is not as rare as might be suspected and is to be included in the differential diagnosis of menorrhagia. The choice of therapy is determined by hematologic and laboratory findings. The use of vitamin P is worthy of consideration. Splenectomy is indicated if megakaryocytes are present.

Journal of Immunology, Baltimore

60:443-614 (Dec.) 1948

Studies on Infection with Brucella Abortus Variants. W. Braun and S. Hauge.—p. 443.
Infection of Guinea Pigs with Massive Doses of Rickettsiae of Epidemic and Murine Typhus. F. Perez Gallardo and J. P. Fox.—p 455.
Study of Shigella Isolated in India and Burma, with Special Reference to Two Previously Undescribed Sero-Types. C. D. Cox and G. I. Wallace.—p. 465.
Experimental Production of Antibodies to Staphylocoagulase. M. Tager and H. B. Hales.—p. 475.
Effect of Incubation at 37 C on Neutralization Test with Various Encephalitis Viruses Including Lansing Strains of Poliomyelitis Virus. P. K. Olitsky and J. Casals.—p. 487.
Effect of Streptothricin on Systemic Infection with Cryptococcus neoformans in Mice. M. Solotorovsky and E. J. Bugie.—p. 497.
Comparison of Antigenicity and Certain Biologic Characteristics of 6 Substrains of Pasteur Fixed Rabies Virus. J. T. Wright and K. Habel.—p. 503.
Further Studies on Oncolysis and Tumor Immunity in Rats. M. R. Lewis, H. D. King, P. M. Aptekman and Florence B. Seibert.—p. 517.
Antigenic Studies of a Sucrose-Fermenting Bacterium. P. R. Edwards, A. B. Moran and D. W. Bruner.—p. 529.
Studies on Chick Embryo Adapted Rabies Virus. H. Koprowski and H. R. Cox.—p. 533.
Individual Specificity of Human Serum. H. P. Goldberg and P. F. de Gara.—p. 555.
Salmonella Atlanta, a New Member of Salmonella G Group. I. Saphra and E. Seligmann.—p. 557.
Purification, pH Stability and Culture of the Mumps Virus. M. L. Weil, D. Beard, D. G. Sharp and J. W. Beard.—p. 561.
Antibody Response in Monkeys Following Oral Administration of Poliomyelitis Virus. H. von Magnus and J. L. Melnick.—p. 583.
Blood Groups and Subgroups of Newborn. L. M. Engasser and E. Witebsky.—p. 597.

Journal of International College of Surgeons, Chicago

12:1-102 (Jan.-Feb.) 1949

Neurinomas of Gastrointestinal Tract. J. Cedermark.—p. 5.
Diasone as an Adjunct in the Treatment of Tuberculosis of Bones and Joints in Children. L. M. Cattell Jr.—p. 12.
*Prevention of Amputation Neuroma. S. Teneff.—p. 16.
Arthrogryposis. A. Steindler.—p. 21.
Repair of Femoral Hernia: New Procedure. A. Kufdakis.—p. 26.
Surgical Principles in Treatment of Pilonidal Cysts and Sinuses. M. L. Parker, G. J. Menaker and D. M. Miller.—p. 30.
Tuberculosis of Bones and Joints. C. A. Ryan.—p. 36.
Total Necrosis of Ectopic Spleen Following Chronic Torsion of Splenic Pedicle. A. Krontiris and P. C. Coulouris.—p. 43.
Surgical Lessons of World War II. M. Weintrob.—p. 50.
Painless Childbirth: Obstetric Spinal Analgesia. Technic of Parmley-Adriani. R. Amador Fernández and S. Varela.—p. 78.

Prevention of Amputation Neuroma.—Teneff believes that the implantation of an amputated nerve into muscles has solved the problem of amputation neuroma. Proliferation of the neurofibrils of the severed nerves takes place in tissue which

is the same or similar to that in which the nerve endings of the amputated nerve were normally situated. It is of the greatest importance that the proliferating neurofibrils be able to proceed without interference or reactive proliferation of intermuscular connective tissue, which remains indifferent to their passage, from the sectioned surface of the nerve to the point where they take up solid connections with the muscle fibers. This method has been used in six amputations at the lower third of the thigh or the midthigh. The sciatic nerve was implanted into an adjacent muscle, usually the biceps femoris. During the immediate postoperative period and in control examinations six to eight months after amputation, the stumps were painless and the sensation of the presence of the amputated limb was slight. In 1 case in which a thigh stump was painful the neuroma was resected and the severed nerve stump implanted into a nearby muscle, with complete recovery. Since according to most statistics painful stumps occur in more than one third of the amputations, it would seem reasonable to give this method a trial.

Journal of Lab. and Clinical Medicine, St. Louis

33:1503-1686 (Dec.) 1948

Parenteral Nutrition: VII. Metabolic Studies on Puppies Infused with Fat Emulsions. G. V. Mann, R. P. Geyer, D. M. Watkin and others.—p. 1503.

Electrophoretic Analysis of Serum Proteins of Blood Dyscrasias. R. K. Brown, J. T. Read, B. K. Wiseman and W. G. France.—p. 1523.

Electrolyte Partition in Patients with Edema of Various Origins: Qualitative and Quantitative Definition of Cations and Anions in Cardiac Decompensation. Edith B. Farnsworth and J. S. Krakusin.—p. 1534.

Efficacy and Safety of Glycine Administered by Vein. G. E. Collentine Jr.—p. 1555.

Determination of Antibody Content of Lymphoid Cell Extracts. Frances Spear.—p. 1563.

Effect of Nitrogen Mustard and X Irradiation on Blood Coagulation. L. O. Jacobson, Edna K. Marks, Evelyn Gaston and others.—p. 1566.

Use of Plasmodium Vivax Preserved by Freezing in Inducing Malaria. G. M. Saunders, D. W. Talmage and V. Scott.—p. 1579.

*Sputum Cell Study for Pulmonary Carcinoma as Routine Laboratory Test. B. A. Shatz, M. Bergmann and S. H. Gray.—p. 1588.

Sputum Cell Study for Pulmonary Carcinoma.—Shatz and his co-workers feel that examination of the sputum for neoplastic cells should be a routine procedure. They analyzed a group of 40 consecutive cases of proved carcinoma of the lung in which sputum examination were done. In 29 of the 40 cases the sputum contained obviously malignant cells. The authors outline the technic of preparing sputum slides, describe and illustrate the cellular elements encountered and set forth the characteristics of the obviously malignant cells. Since hyperchromasia is an important characteristic of malignant cells, overstaining with hematoxylin must be avoided, for it would make it impossible to appreciate the hyperchromasia of malignant cells that might be present. Another possible source of error may be the presence of degenerating normal cells. In chronic infectious diseases the normal bronchial epithelium may undergo squamous metaplasia. Fragments of the metaplastic epithelium are frequently exfoliated into the sputum and may resemble bits of well differentiated squamous carcinoma. However, these cells are arranged in an orderly fashion, have a definite polarity and usually do not contain visible nucleoli. There may be a temptation to make a postive diagnosis on the basis of one or two single cells which have all the characteristics of malignancy. It is wise in such instances to withhold the diagnosis until further specimens can be examined. When positive diagnoses are restricted to comparatively obvious cells the danger of false positive diagnoses is reduced.

Journal of Nat. Cancer Institute, Washington, D. C.

9:129-260 (Dec.) 1948. **Partial Index**

Mucolytic Enzyme Systems: III. Inhibition of Hyaluronidase by Serum in Human Cancer. E. Y. Hakanson and D. Glick.—p. 129.

Quantitative Histologic Analysis of Effect of Chronic Whole-Body Irradiation with Gamma Rays on Spermatogenic Elements and Interstitial Tissue of Testes of Mice. A. B. Eschenbrenner, Eliza Miller and E. Lorenz.—p. 133.

Distribution of N-Acetyl-2-Aminofluorene in Rat Following Single Feeding. H. P. Morris and B. B. Westfall.—p. 149.

Carbonic Anhydrase Content of Normal and Neoplastic Tissues. B. Shacter and M. B. Shimkin.—p. 155.

Infiltrating Adenomatous Lesion of Colon of Rats Ingesting Motor Lubricating Oil. C. C. Lushbaugh and Adeline Hackett.—p. 159.

Tumors of Alimentary Tract in Mice Fed Carcinogenic Hydrocarbons in Mineral-Oil Emulsions. E. Lorenz and H. L. Stewart.—p. 173.

Journal Pharmacology & Exper. Therap., Baltimore

94:339-480 (Dec.) 1948. **Partial Index**

Adrenergic Blocking Drugs: II. Antagonism of Histamine and Epinephrine with N-(2-Haloalkyl)-1-Naphthalene-Methylamine Derivatives. E. R. Loew and Audrey Micetich.—p. 339.

Id.: III. Effects of Two Halogenated Ethylamines on Pressor Responses to Epinephrine, Nicotine and Adrenergic Nervous Reflexes. C. A. Stone and E. R. Loew.—p. 350.

Fate of Procaine in Man Following Its Intravenous Administration and Methods for Estimation of Procaine and Diethylaminoethanol. B. B. Brodie, P. A. Lief and R. Poet.—p. 359.

Antagonism of Rutin to Capillary Effects of Sodium Bisulfite and Procaine. R. K. Richards and K. E. Kueter.—p. 372.

Bromal Hydrate and Chloral Hydrate: Pharmacologic Contrast and Its Chemical Basis. T. C. Butler.—p. 401.

Comparative Actions of Certain Compounds Like Alpha-Fagarine. G. A. Alles and C. H. Ellis.—p. 416.

Pharmacological Activity of 1-Phenyl-2-Butylamine. D. F. Marsh.—p. 426.

Studies on Toxicity, Distribution and Excretion of Emetine. A. I. Gimble, C. Davison and P. K. Smith.—p. 431.

Experimental Heart Failure Caused by Central Nervous System Depressants and Local Anesthetics. A. Wollenberger and O. Krayer.—p. 439.

Action of Narcotics and Local Anesthetics on Respiration of Heart Muscle. A. Wollenberger.—p. 444.

Investigation of Nature and Extent of Binding of Oxophenarsine (Mapharsen) by Red Blood Cell of Rabbit in Vitro. L. D. Fink and H. N. Wright.—p. 455.

Journal of Venereal Disease Information, Wash., D. C.

30:1-34 (Jan.) 1949

Results of Therapy by Race, Sex, and Stage of Syphilis. T. J. Bauer and Eleanor V. Price.—p. 1.

*Asexual Syphilis in Children. H. Eisenberg, F. Plotke and Amelia H. Baker.—p. 7.

Comparative Studies on Mailed Spinal Fluid Specimens. G. R. Cannefax, G. E. Parkhurst and R. W. Bowman.—p. 11.

Integration of Public Health Nursing into a Marine Hospital. J. A. Trautman and Rosalie Giacomo.—p. 15.

Problems in Out-Patient Management of Syphilis in the South. J. A. Lewis Jr.—p. 19.

Asexual Syphilis in Children.—The Municipal Social Hygiene Clinic of the Venereal Disease Control Program, Chicago Health Department, reports 20 cases of asexually acquired syphilis in children under 10 years of age during 1947. In this group there were 16 female and 4 male children. The average age was below 5 years; 4 children were siblings from two different families. In all cases one member of the household or family in a close relationship with the child had been given a diagnosis of secondary syphilis. None of the 20 infected children showed a primary lesion on examination in the clinic; in 15 children the first dark field examination was positive in results, while all 20 had positive serologic reactions. Overcrowded home conditions and lack of education in hygienic matters appear to be conducive to acquiring syphilis asexually. Education of the patient by the clinician and the epidemiologist should reduce this type of infection.

Michigan State Medical Society Journal, Lansing

47:1337-1410 (Dec.) 1948

Rheumatic Fever and the School Child. G. M. Wheatley.—p. 1337.

Diagnostic Aids in Rheumatic Fever. C. A. R. Connor.—p. 1339.

Report of Committee for Evaluation of Anticoagulants in Treatment of Coronary Thrombosis with Myocardial Infarction. American Heart Association. I. S. Wright, C. D. Marple and Dorothy Fahs Beck.—p. 1341.

Medical Diagnosis of Congenital Anomalous Heart. S. Rosenzweig.—p. 1347.

Large Pancreatic Cyst: Case Report, General Discussion and Review of Literature. S. B. Winslow.—p. 1351.

*Cervical Sympathetic and Stellate Ganglion Block in Apoplexy: Preliminary Note on Indications and Technics. A. Blain III.—p. 1356.

Incidental Appendectomies. H. L. Tieche.—p. 1359.

Chronic Urethritis in Women. D. K. Hibbs.—p. 1362.

Emergency Eye Care in General Practice. F. B. Fralick.—p. 1365.

Diagnosis of Early Uterine Cancer. H. M. Nelson.—p. 1369.

Climacteric and Its Management. H. H. Cummings.—p. 1373.

Problems of General Practitioner in Rural Areas. J. S. DeTar.—p. 1376.

Practical Considerations About Endometriosis. R. L. Haas.—p. 1377.

Cervical Sympathetic Block in Apoplexy.—Blain discusses the rationale for interrupting sympathetic impulses to the region of the brain involved in a vascular accident. In patients with acute apoplexy, lumbar puncture is performed immediately after admission. If the spinal fluid is bloody and under increased pressure, the diagnosis is assumed to be cerebral hemorrhage. Sudden onset of symptoms, greatly elevated blood pressure, increased white cell count, stiff neck and deepening coma are further signs of hemorrhage. In this type of patient,

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cervical sympathetic or stellate ganglion block has not yet been employed. If the spinal fluid is clear with elevated pressure, if the coma is not deep and not progressive and the hypertension moderate, the presumptive diagnosis is cerebral thrombosis and the patient is referred to the surgical department for cervical sympathetic block. The results of sympathetic block in cases of long duration are not as favorable as in acute cases of cerebral thrombosis. About half of the 10 patients with disease of long duration treated by the author derived no benefit from this treatment. The technic of cervical sympathetic block can be mastered by any physician, if certain precautions are kept in mind. It is safer and easier and just as effective in apoplexy as is block of the stellate ganglion. General measures in the treatment of acute apoplexy, such as administration of oxygen and catheterization of the urinary bladder, should not be neglected.

Military Surgeon, Washington, D. C.

104:1-78 (Jan.) 1949. **Partial Index**

*Critical Analysis of Syndrome of Acute Total Body Radiation Illness, Its Role in Atomic Warfare and Its Influence on Future Practice of Military Medicine. E. P. Cronkite and W. H. Chapman.—p. 7.
Therapeutic Engineering in Military Medicine. A. E. MacNeill.—p. 30.
Preventive Medicine in Military and Civilian Practice. J. E. Gordon. —p. 38.

Acute Total Body Radiation Illness.—Cronkite and Chapman analyze the importance of total body radiation illness in relation to atomic bombing and describe the clinical aspects of this disease on the basis of the Japanese experiences at Hiroshima and Nagasaki and of experimental data. They discuss the pathogenesis primarily from the standpoint of the initial injury of sensitive cellular systems, and the possible presence and influence of circulating toxins from injured tissues and the bowel. The authors feel that the stockpiling of therapeutic agents other than the antibiotics cannot be advised at the present time, but plans should be formulated by each geographic area for the decentralized operation of blood banks and blood transfusion services. In order to improve our understanding of this illness, it is necessary to investigate various factors such as the influence of diet and environmental factors on survival after exposure to doses in the lethal range; the relationship of the adaptation syndrome and the pituitary-adrenocortical mechanism to radiation illness, and the role of autosensitization and anaphylactoid phenomena in radiation illness. The development of an easily read dosimeter is desirable.

Missouri State Medical Assn. Journal, St. Louis

46:1-72 (Jan.) 1949

Child Health Services in Missouri. Report of American Academy of Pediatrics' Study of Child Health Services in Missouri.—p. 17.

46:73-156 (Feb.) 1949

Allergy Problems. H. J. Rinkel.—p. 91.
Coronary Heart Disease. A. M. Estes.—p. 99.
Pitressin Test: Usefulness in Differential Diagnosis of Chest Pains. M. Bernreiter.—p. 102.
Roentgen Therapy: Present Concept. D. S. Dann.—p. 108.

Nebraska State Medical Journal, Lincoln

34:1-40 (Jan.) 1949

Management of Prolonged Labor. R. E. Campbell.—p. 5.
Hypertension and Unilateral Renal Disease. N. W. Barker.—p. 9.
Care of Newborn Baby of Diabetic Mother. J. E. Gonce Jr.—p. 12.
Value of Electrocardiograph in General Practice. F. W. Niehaus. —p 15.
*Use of Aminophylline in Primary Dysmenorrhea. H. E. Anderson and A. R. McIntyre.—p. 17.
Amebiasis; Surgical Considerations in Cases Occurring Among Ex-Service Personnel. W. P. Kleitsch and L. D. Cherry.—p. 20.
Therapeutic Utilization of Physiologic Reserves. D. P. Ward.—p. 27.
Vasomotor Syndromes and Arthritis in Upper Extremity. E. L. Persons. —p. 30.

Aminophylline in Primary Dysmenorrhea.—According to Anderson and McIntyre primary dysmenorrhea is characterized by pelvic pain of various degrees unassociated with any demonstrable pathologic changes in the pelvis. This periodic pain is frequently accompanied by nausea and vomiting as well as severe headache and usually backache. Although this symptom complex is not a true disease entity, the disability frequently results in economic loss, and during the adolescent years the young girl may lose time from school. The authors tried aminophylline because of the effect of this drug on smooth muscle. Patients from the clientele of one of the authors and nurses were the subjects of this study. A total of 100 cases were observed. The tablets used contain a combination of aminophylline, caffeine, acetophenetidin, acetylsalicylic acid and sodium iron pyrophosphate. The patient was advised to take two tablets every two hours with a maximum of five tablets per day. Placebos given to exclude the psychic element did not produce the same effect. Aminophylline alone produced slightly less favorable results than did the combination of drugs. The tablets containing the combination of drugs produced satisfactory results in 70 per cent of the cases and partial relief in an additional 16 per cent; the remaining 14 per cent obtained no relief.

New England Journal of Medicine, Boston

240:1-44 (Jan. 6) 1949

Practice and Teaching of Surgery in Veterans Administration Hospitals. J. E. Dunphy.—p. 1.
*Arachnidism: Effect of Calcium Gluconate in 6 Cases. W. E. R. Greer. —p. 5.
*Perforation of Infarcted Interventricular Septum, with Partial Heart Block. R. V. Ford.—p. 8.
Premedication in Anesthesia: Unusual Experience with Concurrent Administration of Barbiturate and Pantopon. J. C. McCann.—p. 11.
Observation of Antitoxin Titers after Booster Doses of Tetanus Toxoid. H. J. Banton and Pauline A. Miller.—p. 13.
Surgical Approach to Congenital Cardiovascular Defects. I. M. Essrig. —p. 15.
Nonosteogenic Fibroma of Bone (Fibula).—p. 30.
Acute Pancreatitis, with Perforation of Transverse Colon and Abscess Formation.—p. 32.

Effect of Calcium Gluconate on Arachnidism.—According to Greer the black widow spider (Latrodectus mactans) is prevalent throughout North, Central and South America and especially in the Southern United States. These spiders may be found in dark corners and in closets. The author presents observations on 6 patients who had been bitten by black widow spiders in the course of seven days in a tropical area. The syndrome usually followed a similar pattern: transient excruciating local pain at the site of the spider bite and rapid local edema and redness of the skin at the site; in ten to fifteen minutes a "burning sensation" that spread centrifugally from the site of the bite and soon involved the whole body, passing off in about twenty to thirty minutes; a sudden abdominal pain, often cramplike as in an acute surgical condition of the abdomen; cramplike pains in the legs, arms and back; a general feeling of utter weakness; restlessness and extreme fear reaction, often hysteria; headache, nausea and vomiting, and burning of the soles of the feet. The patients in this series were immediately given 10 cc. of 10 per cent calcium gluconate intravenously. Subsequently they were given a saline infusion containing 10 cc. of 10 per cent calcium gluconate. An ice bag was applied to the affected area. Relief was obtained in a short time in all cases and was followed by profound sleep. The patients were out of bed the next day and back to duty on the fourth day. Even the 2 patients in profound shock responded. The author says that about sixty preparations have been recommended for arachnidism. Alcohol seems to be contraindicated, since fatal results have been reported from it. Other preparations are antivenin (Latrodectus mactans), convalescent serum, and neostigmine methylsulfate. Gilbert and Stewart recommended the calcium salts. The author stresses that arachnidism is more frequent than reports would indicate. It may simulate appendicitis, perforated viscus, peritonitis or any other acute surgical emergency. The syndrome following the bite of Latrodectus mactans may give symptoms referable to many systems of the body. Nervous, cardiac, renal, pulmonary and cutaneous manifestations may be present. Burning of the feet may be pathognomonic in arachnidism.

Perforation of Interventricular Septum.—Ford presents the history of a woman, aged 72, in whom there developed an interventricular defect at the site of an infarct high in the septum. The rupture developed just beneath the membranous septum. Electrocardiographic examination shortly before death showed second degree heart block as well as the characteristic changes of posterior infarction. A loud systolic murmur was heard at the apex, but the patient was not observed long enough for the time of development of the mumur to be established.

New Jersey Medical Society Journal, Trenton

46:1-54 (Jan.) 1949

Office Diagnosis of Peripheral Vascular Insufficiency. W. Redisch. —p. 4.
Surgical Gall Bladder. V. B. Seidler.—p. 10.
Infant and Fetal Mortality at a Rural Hospital. R. A. Weinstein.—p. 14.
Management of Child with Hay Fever or Asthma. W. B. Nevius.—p 17.
Mechanism of Congestive Failure. H. Rosenberg.—p. 23.
Dicumarol Poisoning: Report of Case. I. L. Applebaum and P. Shulman. —p. 28.
Mumps Encephalitis: Report of Case Presenting Some Unusual Features. W. Ripley.—p. 31.
Decrease in Attack Rate of Syphilis. A. J. Casselman.—p. 32.

Oklahoma State Medical Assn. Jour., Oklahoma City

41:489-532 (Dec.) 1948

Repairing the Saddle Nose. O. A. Watson.—p. 491.
Burns in Children. P. Nagle.—p. 494.
Suprapubic Prostatectomy. E. M. Henry.—p. 496.
Evaluation of Prostatic Resection. H. S. Browne and J. O. Akins. —p. 499.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

24:1-103 (Sept.) 1948

Listerella Monocytogenes Strain Isolated from Human Source in Puerto Rico. O. Felsenfeld.—p. 1.
Studies on Salmonellosis in Puerto Rico: I. Salmonella Types Isolated from Man and Animals in Puerto Rico. O. Felsenfeld, L. M. González and Viola M. Young.—p. 9.
Id.: II. Agglutinins Form Salmonella H Antigens in Blood of Apparently Normal Adults. L. M. González, Viola M. Young and O. Felsenfeld. —p. 24.
Types of Salmonella Typhosa Isolated in Puerto Rico. O. Bonilla Soto and P. Morales Otero.—p. 31.
Chemical Study of Molinillo Plant (Lenotis nepetaefolia, L.), with Special Reference to Its Seed. C. F. Asenjo, A. R. Freire de Guzmán, A. G. Mayoral de Asenjo and J. González de López Candal.—p. 44.
Splenectomy in Schistosomiasis Mansoni. L. C. Tavares da Silva.—p. 69.

Rhode Island Medical Journal, Providence

31:705-756 (Dec.) 1948

Berylliosis. S. A. Wilson.—p. 719.
Spinal Anesthesia in Vaginal Deliveries. W. J. Dufresne and H. W. Umstead.—p. 723.
Myxedema and Psychosis: Case Report. J. J. Scanlan.—p. 725.
What Good Are Health Museums? B. Gebhard.—p. 732.

Urologic & Cutaneous Review, West Palm Beach, Fla.

53:1-64 (Jan.) 1949. **Partial Index**

Modified Technic in Suprapubic Prostatectomy. O. A. Nelson.—p. 1.
Transverse Abdominal Incision for Transperitoneal Nephrectomy. J. L. MacDonald and G. G. Reinle.—p. 5.
Case of Erythroblastosis Fetalis Associated with Congenital Malformations, Placental Changes and Renal Disease in Mother. L. H. Biskind and Anna M. Young.—p. 10.
*Channeled Urethral Stone. A. C. Drummond.—p. 12.
Calculous Disease of Kidney and Urinary Tract. R. Oppenheimer.—p. 15.
*Dietary and Occupational Considerations in Treatment of Urogenital Disorders. C. E. Burkland.—p. 25.
Color Reactions with Malignant Tumors. E. Weiss.—p. 30.
Stigmata of Degeneration in Fluorosis. L. Spira.—p. 34.

Channeled Urethral Stone.—Drummond presents the case of a woman, aged 77, who had a urethral calculus with a tunnel down its center, through which the bladder was emptied. According to the author it has never been determined definitely whether calculi of the urethra in the female occupy preexisting pouches (diverticula) or whether these sacculations are formed by the stone. In this case it would seem that calcific deposits were arrested at a narrowed external meatus, and that the distensibility of the urethra proximal to the external meatus allowed the continual formation of stone deposits over a period of years, which gradually filled in a central opening through which the patient voided, largely involuntarily.

Dietary and Occupational Considerations in Urogenital Disorders.—Burkland shows that attention to the proper diet, fluid intake and bowel habits with the avoidance of irritating foods and beverages such as condiments, spices, alcohol, coffee, tea, cocoa and the cola drinks and avoidance of certain occupations and sports can be beneficial adjuncts in the treatment of irritative, inflammatory and calculous disease of the urogenital tract. The author also presents suggestions for the treatment of patients with solitary and polycystic kidneys and for the prevention of recurrence of urinary tract calculi. Emphasis is placed on a nutritious, high vitamin, nonirritative diet with copious drinking of water and the elimination of certain foods rich in stone-producing substances such as calcium, phosphorus, oxalic acid and the purine proteins in the diet of patients who have had renal stones. Seven illustrative cases are presented.

Virginia Medical Monthly, Richmond

76:1-54 (Jan.) 1949

Cancer in General Practice. E. P. Lehman.—p. 3.
Benign Nonspecific Neoplasms of Gastro-Intestinal Tract. J. L. Smoot and D. W. Scott Jr.—p. 8.
Hemorrhagic Diseases: Classification, Diagnosis and Treatment. H. P. Holt and B. S. Leavell.—p. 13.
Successful Treatment of Gold Dermatitis with British Anti-Lewisite: Case Report. L. F. Moss and E. C. Toone Jr.—p. 23.
Small Bowel Tumors. R. E. Bower and G. D. Vermilya.—p. 27.
Unicameral Cyst of Calcaneus. R. G. Dunn Jr.—p. 30.
*Cyanosis in Infants from Polluted Well Water. E. A. Harper.—p. 32.
Case of Pregnancy Complicated by Uterus Didelphys. G. W. Jones. —p. 35
What Are the Movies Doing to Our Young People? E. P. Tompkins. —p. 37.

Cyanosis in Infants Caused by Well Water.—Harper adds to the number of previously reported cases that of another infant in whom cyanosis developed apparently as the result of being fed with a formula that had been prepared with well water of an abnormally high nitrate content. The cyanosis disappeared after the formula was prepared with different water. The author points out that other investigators have demonstrated that the ingestion of nitrate will cause methemoglobinemia in only those infants who have a low acidity of the gastric juice (a p_H higher than 4.0). The low acidity permits the growth of several organisms which are capable of reducing nitrate to nitrite in the upper gastrointestinal tract. The absorption of this nitrite by the blood stream produces the methemoglobinemia and cyanosis. The normally high values of gastric acidity in adults explain why they never exhibit cyanosis from drinking water with a high nitrate content.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

57:1-44 (Jan.) 1949

Acute Hypotension. W. W. Brown.—p. 1.
Notched Rotation Osteotomy: Method Employed in Correction of Tibia and Other Conditions. L. S. Lucas and G. W. Cottrell.—p. 5.
Vaginal Hysterectomy: Its Advantages. E. Hyman.—p. 9.
Gynecologic Problems of the Los Angeles County Hospital: Uterine Adenocarcinomas; Ovarian Mixed Tumors: Nonmalignant Reactions of Fallopian Tube; Granulomas. E. G. Jones.—p. 11.
*Endometrial Carcinoma. A. W. Diddle.—p. 20.
Surgical Considerations in Diverticulitis of Colon. S. H. Babington. —p. 23.
Lateral Aberrant Thyroid—A Misnomer. M. A. Howard.—p. 26.
Pellet Implantation with Alpha Estradiol for Relief of Menopausal Syndrome. H. M. Immerman.—p. 29.
Simultaneous Repair of Cystocele and High Rectal Prolapse During Total Hysterectomy. M. Weinstein and M. Roberts.—p. 34.

Endometrial Carcinoma.—Diddle feels that the importance of endometrial carcinoma is underestimated because of two incorrect assumptions: that it is of infrequent occurrence and that the prognosis is generally good. This report is concerned with 221 women with a histologic diagnosis of endometrial carcinoma treated in Dallas, Texas, between 1936 and 1946, inclusive. The disease was often unsuspected and its true pathologic nature was not understood. Inappropriate surgical procedures were frequently used. Laparotomy was often done without an antecedent diagnostic curettage, indicating that cancer was not suspected. This mistake frequently precluded the proper use of irradiation and of suitable surgical measures. Endometrial carcinoma is predominantly a disease of the menopausal and postmenopausal periods of life. The early signs of the disease are usually scant vaginal spotting of blood or leukorrhea. Diagnosis is dependent on the microscopic study of tissue obtained by curettage. Since cervical, tubal and ovarian metastases may occur, the necessity of total hysterectomy and bilateral salpingo-oophorectomy is obvious. Five year survival rates of 65 to 75 per cent have been obtained with this radical surgical treatment. There is evidence that irradiation given a few weeks before operation produces a beneficial effect. It damages the neoplastic cells so that they apparently are less likely to survive if spilled into the surgical field. The optimum time for operation is four or five weeks after irradiation.

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FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

23:213-304 (Dec.) 1948

Antecedents of Infantile Cerebral Palsy. P. R. Evans.—p. 213.
*Folic Acid in Celiac Disease: Study of Its Administration in 22 Cases. J. D. Hay.—p. 220.
Nitrogen Partition in Newborn Infants' Urine. A. Barlow and R. A. McCance.—p. 225.
Perinatal Deaths in Czechoslovakia. H. Sikl.—p. 231.
Relationship Between Maternal Conditions During Pregnancy and Congenital Malformations. B. Landtman.—p. 237.
Radiology of Intestinal Obstruction in Children and Infants. J. H. Middlemiss.—p. 247.
*Pneumonia in the Newborn Resulting from Inhalation of Gastric Contents. K. Rhaney and Agnes R. Macgregor.—p. 254.
Juvenile Thyrotoxicosis Treated with Thiouracil. J. W. Farquhar. —p. 259.
Acute Neurotic Breakdown in Children with Refusal to go to School. W. Warren.—p. 266.
*Erythema Nodosum in Children Following Administration of Sulfathiazole. S. A. Doxiadis and D. McLean.—p. 273.
Historical Background of Convulsions in Childhood. R. A. Shanks. —p. 281.

Folic Acid in Celiac Disease.—Hay reports on 22 infants and children who had celiac disease and were treated for a period with a low fat and high protein diet, liver extract and vitamins. Folic acid was then added to the treatment for a comparable period. The clinical condition of the children during these periods was compared by observations on rate of gain in weight and on the character of the feces as seen with the naked eye. No conclusive evidence was obtained of any beneficial effect of the folic acid.

Pneumonia in the Newborn from Inhalation of Gastric Contents.—Rhaney and Macgregor, in the course of performing postmortem examinations in cases of neonatal death, noted occurrence of pneumonia with certain special features, which they believe to be caused by the aspiration of stomach contents. An extensive survey of the available literature revealed that little attention had been devoted to this condition. The authors analyze clinical and necropsy data from 41 cases observed between 1939 and 1946. The main pathologic features were extensive consolidation with hemorrhage and a tendency to suppuration. Microscopically, digestion of tissues and lysis of blood in relation to aspirated material were characteristic. Attention is drawn to predisposing factors with particular reference to prematurity. There seems to have been an increase in the condition during the last two years under review, and it is assumed that this may be related to a shortage of the nursing staff.

Erythema Nodosum After Administration of Sulfathiazole.—According to Doxiadis and McLean the occurrence after the administration of sulfathiazole of a rash similar to erythema nodosum (sulfathiazole erythema nodosum) has been reported frequently. Loefgren has investigated this problem most thoroughly in adults and has concluded that the eruption is not an ordinary drug rash, but is similar in nature to erythema nodosum, the sulfathiazole being a provocative factor only. The present investigation confirms Loefgren's general conclusions. The material for this investigation consists of (*a*) 17 children in whom a course of sulfathiazole preceded the first appearance of a skin rash similar to erythema nodosum and (*b*) 32 children to whom sulfathiazole was given for therapeutic or experimental purposes at varying intervals after an eruption of erythema nodosum. Twelve responded with an eruption of lesions similar to erythema nodosum and 20 did not. In addition the case histories of another 18 children with one or more courses of sulfathiazole for various infections were studied. On the basis of clinical biologic and histologic data the authors conclude that this manifestation is not a "drug rash" due to allergic sensitivity to sulfonamide compound, but is fundamentally the same as erythema nodosum. In order to elicit an eruption of erythema nodosum, sulfathiazole must be given to subjects who are in the active stage of one of the infections commonly associated with spontaneous erythema nodosum. It is, therefore, a provocative and not an etiologic factor.

British Heart Journal, London

10:213-308 (Oct.) 1948

Auscultation of Heart. S. A. Levine.—p. 213.
Heart-Vector and Leads. Part III: Geometrical Representation. H. C. Burger and J. B. Van Milaan.—p. 229.
Ventricular Escape in Acute Rheumatism. A. C. Kirby.—p. 234.
Dissecting Aneurysm of Interventricular Septum. A. A. F. Peel. —p. 239.
Long Survival with Cardiac Aneurysm. A. Codounis.—p. 244.
*U Wave Inversion. J. H. Palmer.—p. 247.
Cardiac Lesions in Thiamin Deficiency. J. F. Pantridge.—p. 252.
Cardiac Pain with Recovery of T Wave. T. East and S. Oram. —p. 263.
*Heart in Pneumonoconiosis of Coalminers. A. J. Thomas.—p. 282.

U Wave Inversion.—Palmer says that the U wave when first recognized in 1906 by Einthoven was regarded as pathologic. Since then the normality of upright U waves, except perhaps in cases in which they are unusually high, has been generally conceded. Various hypotheses have been advanced to explain the U wave, of which the most satisfactory is that of Hoff and Nahum (1938), who concluded that it undoubtedly forms part of the ventricular complex, and is coincident in time with the supernormal phase. Palmer's interest in negative U waves was stimulated by noticing their appearance in the after-exercise tracing of a patient with angina pectoris. Subsequently 6 further such patients were found. All were males, and in all of them pain was easily induced by effort. None gave a history of a previous clinical attack of coronary occlusion. Six of the 7 had hypertension. Temporary U wave inversion appeared during anginal attacks that were induced by exercise. The pattern of U wave inversion seen most frequently was made up of negativity in lead I and in the left chest leads, and positivity in lead III. The association in individual chest leads of sharply pointed, symmetric, positive T waves with inverted U waves occurs in patients with angina pectoris during exercise. Discordancy in direction of development of T and U may occur in the chest leads during exercise. Four cases are described of inversion of U in one or more leads as an isolated electrocardiographic abnormality. Inversion of U when seen in tracings showing bundle branch lesions is probably the result of associated myocardial damage rather than of the conduction defect as such. The R-U time interval may decrease as the heart rate increases. Inversion of U in one or more leads is pathologic.

The Heart in Pneumonoconiosis.—According to Thomas, pneumonoconiosis can cause pulmonary heart disease, a condition also called cor pulmonale. He presents the results of clinical studies on the cardiovascular system of 96 coal miners with pneumonoconiosis. Patients with cardiovascular disease other than that resulting from the pulmonary disorder were excluded. Eleven of the patients had failure of the right side of the heart and another 24 had evidence of enlargement of the right ventricular outflow tract. Roentgenologic examination was of the greatest value in the early detection of involvement of the right side of the heart. Electrocardiographic examination has been helpful in some cases.

British Medical Journal, London

1:43-82 (Jan. 8) 1949

Clinical and Social Problems of Epilepsy. F. J. Nattrass.—p. 43.
Diabetic Fertility, Maternal Mortality and Fetal Loss Rate. J. A. L. Gilbert and D. M. Dunlop.—p. 48.
*Pregnancy Complicated by Diabetes Mellitus. H. H. F. Barns and M. E. Morgans.—p. 51.
Relation of Staph. Pyogenes to Dental Caries. E. Matthews, H. F. Atkinson, P. Saunsbury and H. W. Clegg.—p. 54.
Senile Deterioration of Central Nervous System: Clinical Study. T. H. Howell.—p. 56.

Pregnancy Complicated by Diabetes Mellitus.—Barns and Morgans observed during the past twenty years 45 patients with definite diabetes mellitus in fifty-eight pregnancies. The high incidence (1 in 580 deliveries) is due to the fact that a number of the patients were referred to the obstetric unit from the diabetic clinic of the hospital. Pregnancy in the diabetic patient is infrequent because of the decreased fertility of the diabetic patient and because diabetes is more common in women during the latter portion of the child-bearing period, when pregnancy is less frequent. In the majority of patients the carbohydrate tolerance was found to diminish as pregnancy

advanced. In some, however, it increased prior to delivery, and it is possible that estrogens given therapeutically may have been a factor in this improvement. The tendency for hydramnios to develop in the pregnant diabetic was confirmed. It was found that hypoglycemic symptoms and coma tend to occur in early pregnancy, and ketosis and diabetic coma in the latter part of pregnancy. There is a greater tendency for late pregnancy toxemia to develop in the diabetic than in the nondiabetic. The maternal prognosis is good, and pregnancy does not make the diabetes worse provided that it is well treated. The late fetal mortaltiy was 55 per cent in a first series of 43 pregnancies. In a second series, of 15 pregnancies, in which estrogens were given there were only 3 deaths. It is suggested that the factor affecting the viability of the fetus probably arises in the maternal anterior pituitary lobe. The incidence of abortion does not appear to differ from that for nondiabetic pregnancies and suggests, first, that diabetes mellitus is not a cause of abortion, and, secondly, that the factor which reduces fetal viability exerts its strongest influence toward the end of pregnancy. It is suggested that the tendency to gigantism is due to an excess of the growth hormone from the maternal pituitary gland.

Indian Medical Gazette, Calcutta

83:445-490 (Oct.) 1948. **Partial Index**

Lipomas, Big and Small. M. G. Kini.—p. 447.
Experience of "Air Embolism-Pleural Shock During Artificial Pneumothorax in Pulmonary Tuberculosis Cases." S. K. Ganguli and N. B. Mukherji.
*Effect of Penicillin on Vaccine Virus and Its Value in Purification of Vaccine Lymph. T. B. Patel.—p. 452.
Further Observations on Parenteral Paludrine Hydrochloride in Malarial Fevers. K. L. Basu Mullick and J. C. Gupta.—p. 458.

Effect of Penicillin on Vaccine Virus.—Patel says that at his institute a chloroform process has been used to reduce the bacterial count of calf lymph. On some batches of lymph a repetition of the chloroform process was required, and since it was feared that this might reduce the potency of the vaccine, sulfonamide compounds were tried to reduce the bacterial count without success. Recently, as the supply of penicillin became freely available, experiments were carried out to test its effect. These experiments were confirmed by trials in the field with penicillin-treated lymphs. Penicillin can be safely used for the rapid purification of vaccine lymph and the dose required is usually not more than 150 units per cubic centimeter of lymph. In this dose it has not affected the potency of the vaccine virus even when the lymph has been used after being stored for more than six to twelve months at a temperature of minus 12 C. This was proved by results on the children vaccinated by this lymph. Treatment with penicillin in a dose of 5,000 units per cubic centimeter of lymph had no deleterious effect on vaccine lymph even after preservation in a refrigerator at 2 C. for four weeks and more. Penicillin used in a dose of 25,000 units per cubic centimeter of lymph exerts some destructive effect on the vaccine virus when kept at room temperature for seven days or more, but this is not observed when the lymph is kept in a refrigerator at 2 C.

Journal of Laryngology and Otology, London

62:715-784 (Dec.) 1948

Pins in Periphery of Lung. G. Glass.—p. 715.
Practical Application of Clinical Audiometry. B. Warshaw.—p. 721.
Effects of Streptomycin on Eighth Nerve System. R. Dix.—p. 735.
*Head Noises of Muscular Origin: Audible or Objective Tinnitus. H. W. Schwartz:—p. 746.

Audible or Objective Tinnitus.—Schwartz reports the case of a man, aged 32, who complained of headaches and a sound like "the tick of an alarm clock" in both ears. Although the patient had noticed the "tick" on and off for three years, lasting for days or weeks, it had not caused him actual annoyance until three months before admittance. The observations made at this time were that a bilateral clicking-grating noise was easily audible at a distance of 2 or more feet from either ear. Up and down movements of the tongue and soft palate were noted as well as rhythmic contractions of the masseter and temporalis muscles on clenching the jaws; all were in time with the clicking noise. At a later examination it was found that the rate of the click was about 100; the intensity varied, but at one time it could be heard at a distance of 8 feet. Schwartz points out that the number of reported cases of audible or objective tinnitus not associated with the circulation appear to be few. Those authors cited by Bredlau in bringing the subject up to date in 1934, when he himself reported a case of his own in a child aged 9, made no mention of any other muscle involvement than that of the soft palate and eustachian tube. The muscular type of tinnitus always produces a noise characteristically regular and rhythmic, either clicking or ticking, at the rate of about 100 per minute. The origin of the sounds heard in the muscular type of objective tinnitus had been explained in a number of ways. The only explanation of the origin of these sounds for which definite evidence has been offered ascribes it to the clonic contractions of the muscles about the eustachian tube and the soft palate. The opening and closing of the eustachian tube, with the accompanying alternate separation and contact of the two moist surfaces, best explains the peculiar clicking sound. Hysteria and neurasthenia have been hypothecated as predisposing or contributing factors.

Lancet, London

1:47-86 (Jan. 8) 1949

Dangers of Criminal Instrumental Abortion. K. Simpson.—p. 47.
Consciousness and Its Disturbances Considered from Neurologic Aspect. J. P. Martin.—p. 48.
*Torulosis of Central Nervous System: Report of 2 Cases. P. M. Daniel, F. Schiller and R. L. Vollum.—p. 53.
*Diabetic Ketosis: Comparison of Results of Orthodox and Intensive Methods of Treatment Based on 170 Consecutive Cases. A. B. Black and J. M. Malins.—p. 56.
Toxic Effects of Tridione. J. N. Briggs and J. L. Emery.—p. 59.
Hypertension Following Renal Infarction. J. Wainwright.—p. 62.

Torulosis of Central Nervous System.—According to Daniel and his co-workers torulosis may involve any tissue, but disorders of the central nervous system account for about half of the reported cases. One of the 2 cases described here may be regarded as typical of the diffuse meningoencephalitic form of torulosis. Circumscribed "toruloma" of the central nervous system, the less common type of lesion, is illustrated by the second case. Both patients died. The clinical picture of torulosis of the central nervous system closely resembles that of tuberculosis of the central nervous system. Torula is one of the most resistant parasites of man. Its biologic characteristics are such that none of the usual physical or chemical agents will affect it either in vivo or in vitro; and it does not call forth effective antibody or cellular reaction. Penicillin, streptomycin and various sulfonamide compounds did not inhibit the growth of cultures of Torula. Of the sulfonamide drugs only soluthiazole® (disodium cynamylidene dibisulfite derivative of sulfathiazole) had such an effect. Gentian violet exerted a considerable inhibitory effect on cultures.

Diabetic Ketosis.—Black and Malins record the results of treatment in 170 cases of diabetic coma or ketosis and stress the effects of changing from orthodox methods to the intravenous use of large quantities of fluids and insulin. The diagnosis is rarely difficult; the authors see no similarity between diabetic and hypoglycemic coma. As soon as the diagnosis is established, an initial dose of 200 to 400 units of soluble insulin is given intravenously. An intravenous drip is set up, and within the first fifteen minutes a pint of isotonic sodium chloride solution is infused. A second pint is given in the second fifteen to thirty minutes, and perhaps a third pint at the same rate. Thereafter a solution of 5 per cent dextrose in isotonic sodium chloride solution is administered, usually at the rate of 1 pint hourly. As soon as the intravenous drip has been set up, a urethral catheter is passed and the bladder emptied. Thereafter the bladder is emptied every thirty minutes. Each specimen of urine collected is measured and tested with Benedict's solution and ferric chloride. Further soluble insulin in doses of 50 units is injected into the drip tubing every thirty minutes until the urine becomes free of acetone bodies by the Gerhardt test. The immediate objects of the treatment are: the abolition of ketosis, rehydration and restoration of chloride. These objects are quickly realized with the described treatment, and the mortality has been reduced from 28.7 per cent to 6.6 per cent.

Acta Medica Orientalia, Jerusalem

7:123-161 (July-Aug.) 1948. **Partial Index**

*Treatment of Pruritus Vulvae by Local Inunctions with Pyribenzamine. B. Zondek and Y. M. Bromberg.—p. 123.
Clinical Experience and Immediate Results of Vagectomy in Intestinal Ulcers. F. Mandl.—p. 131.
Singultus. J. Kleeberg.—p. 131.
*Oligospermia Associated with Impaired Dark Adaptation. J. Landau and Z. Polishuk.—p. 153.

Inunctions with Pyribenzamine® for Pruritus Vulvae.—Zondek and Bromberg failed to effect improvement in vulval pruritus caused by allergy to endogenous hormones, by the oral administration of antihistaminic substances. They therefore resorted to local administration of the antihistaminic pyribenzamine hydrochloride® (tripelennamine hydrochloride). Glycerin seemed to be the most suitable vehicle for local administration, because it readily penetrates the skin. The 14 patients who were selected for this therapeutic trial had had vulval pruritus for six months to twelve years. Allergy to endogenous hormones was the etiologic factor in 3 of these cases, vitamin deficiency in 4 cases, diabetes mellitus in 2 cases, menopause in 1 case, vaginitis due to Trichomonas in 2 cases, vulvovaginal mycosis in 1 case and psychoneurosis in 1 case. In order to eliminate errors in the interpretation of the effects of tripelennamine, each patient was first treated by local applications of full strength glycerin for one week and by inunctions of 3 per cent procaine in glycerin for a second week. During the third week a 3 per cent solution of tripelennamine in glycerin was applied on the vulva in each patient at eight hourly intervals. Temporary relief from the itching was obtained in 7 patients, 6 were improved and 1 did not respond. Symptomatic relief or improvement was observed not only in cases due to allergy, but also in those due to diabetes, vitamin deficiency or vulvovaginal infections. The authors suggest that tripelennamine may interfere with release of continually increasing amounts of histamine due to injury of the vulvar tissue by scratching or inflammation. Factors other than antihistaminic ones may also be involved. The inunctions with tripelennamine have only a symptomatic effect, which does not persist beyond the cessation of treatment.

Association of Oligospermia with Impaired Dark Adaptation.—Landau and Polishuk made dark adaptation tests on 17 men with sterility due to oligospermia and on 19 men with normal spermatogenesis. In 6 of the 17 men with oligospermia a decided reduction in dark adaptation was found, whereas in the controls with normal sperimatogenesis the dark adaptation values were within normal limits. Low vitamin A values were found in 2 cases of oligospermia associated with impaired dark adaptation and in 1 case of oligospermia with normal dark adaptation. In 2 other cases of oligospermia with normal dark adaptation, normal vitamin A values were noted. It is assumed that oligospermia associated with impaired dark adaptation might possibly represent a syndrome of a pituitary-hypothalamic disorder.

Acta Orthopaedica Scandinavica, Copenhagen

18:1-232 (Nos. 1 & 2) 1948. **Partial Index**

Pinning for Slipping of Epiphysis of Femoral Head. G. Wiberg.—p. 4.
Results of Experimental Investigation into Morphophysiology of Joints. D. E. Holmdahl.—p. 13.
Changes in Chlorine Content of Patellar Cartilage and Intervertebral Disks Associated with Degeneration. O. Lindahl.—p. 28.
Comparative Study of Methods of Treatment of Diaphyseal Fracture of Leg. G. A. Landoff.—p. 37.
*Non-Union in Fractures of Long Bones. C. Hirsch.—p. 61.
Removal of Base of Proximal Phalanx in Hallux Rigidus. E. Severin. —p. 77.
Results of Lumbar Fusion in Disk Degeneration. L. Unander-Scharin. —p. 125.
Late Results of Operative Treatment of Recurrent Dislocation of Patella. M. Felländer.—p. 157.
Method of Autotransplantation of Diseased Tissue in Patients Suffering from Rheumatoid Arthritis. H. Novotny.—p. 227.

Nonunion in Fractures of Long Bones.—According to Hirsch the incidence of pseudarthrosis varies between 0.5 and 5 per cent. When pseudarthrosis has developed, the medullary cavity is closed by a sclerotic plug of bone, both bone ends are atrophic and there is a gap between them. The distinction between delayed union and pseudarthrosis (nonunion) is made from the roentgenogram. If a sclerotic plug of bone fills the medullary cavity pseudarthrosis is established and surgery is the only solution. The author reviews observations on 69 cases of uninfected pseudarthrosis of the long bones treated at his clinic from 1935 to 1946. Surgical procedures for the treatment of pseudarthrosis aim to break down the sclerotic barrier. By removing the pseudarthrosis tissue, including the sclerotic bone, conditions are made favorable for the development of granulation tissue with new vessels and osteoblasts from the surrounding tissue. If there is good contact between the bone fragments and little movement between them, some form of bone perforation—e. g., Beck's drilling—is sufficient, but usually a bone graft is preferable. In 70 per cent of the cases union was effected after one operation and in 13 after a second operation. The average consolidation time was 5.4 months for Beck's drilling, 7.2 months for inlay grafts and 15 months for Küntscher nailing.

Chinese Medical Journal, Shanghai

66:467-526 (Sept.) 1948. **Partial Index**

Endometriosis of Inguinal Region: Case Report. A. Wong.—p. 483.
Dysgerminoma of Ovary: Case Report. Helen Chang.—p. 485.
Complications of Whooping Cough in Children. S. C. Lin.—p. 494.
*Glucose Tolerance Test in Infectious Diseases. Yoh Tse-Fei.—p. 498.
Acute Pancreatitis. T. Y. Hsu and G. L. Wu.—p. 505.

Dextrose Tolerance in Infectious Diseases.—Yoh Tse-Fei made dextrose tolerance tests on 100 patients with various infectious diseases, 40 healthy adults and 7 diabetic patients. In the patients with infectious diseases the test was made during the febrile stage and in 62 it was repeated during convalescence. It was found that during infectious diseases there is a temporary but definite decrease of dextrose tolerance with a curve simulating that of diabetes mellitus during the febrile or infective stage, and this decrease tends to disappear with the curve returning to normal or nearly normal as the infection subsides. The exact cause of this change in the carbohydrate metabolism is not known, but there is evidence that impairment of the hepatic function might account for it. Others assume that the pancreas or some other organ is involved. The author believes that the impairment of the carbohydrate metabolism in infectious diseases makes it advisable to provide a diet that is high in carbohydrate content so as to stimulate glycogenesis in the liver, because the higher the glycogen content of the liver the better is its resistance against infection and toxic influences.

Chirurg, Heidelberg

19:385-432 (Sept.) 1948. **Partial Index**

*Thorotrast: Lesions Caused by It and Danger of Development of Sarcoma. K. H. Bauer.—p. 387.
*Investigations on Damaging Effects Exerted by Thorotrast on Body Tissues. W. Wachsmuth.—p. 390.
Is it Permissible to Continue the Use of Thorotrast for Angiography? H. Kuhlendahl.—p. 396.
Terminology of "Sudek's Syndrome." F. Oehlecker.—p. 398.
Clinical and Anatomic Observation After Plain Suturing of Perforation of Gastroduodenal Ulcers. H. Frangenheim.—p. 403.
Experiences with Peridural Anesthesia. A. C. Ohling.—p. 407.

Threat of Sarcoma from Use of Thorotrast.®—Bauer directs attention to the danger involved in the use of thorotrast,® a colloidal suspension of thorium dioxide. The radiation given off by this contrast medium is about 6 r per day, a quantity which is about 10 times as much as that usually cited as the maximum daily permissible dose in the regulations formulated for the protection against harmful exposures to rays. Studies on mice, rats, guinea pigs and rabbits have demonstrated that the use of thorotrast® involves the danger of sarcoma. These animal experiments suggest that in human beings the latent period between the introduction of thorotrast® and the development of sarcoma will be twelve to eighteen years. The author cites the case reported in the United States by MacMahon and his associates, in which a sarcoma developed twelve years after thorotrast® had been used for hepatography. He fears that in Germany the danger of thorotrast®-induced sarcomas is greater, because its use had not been discouraged to the same extent as in the United States, where it had been rejected by the

Council on Pharmacy and Chemistry as early as 1932. He believes that in view of the threat of sarcoma and of the fact that thorotrast® apparently also impairs the hemopoiesis in the bone marrow, spleen, liver and lymph nodes and that it may cause fragility or necrosis of bones, the further use of thorotrast® as a contrast medium is not advisable.

Damaging Effect of Thorotrast® on Tissues.—Wachsmuth reports the case of a man, aged 28, who sustained a shell missile injury in the region of the left temporal bones which resulted in the development of a cerebral abscess and osteomyelitis of the temporal bone. At the time a neurosurgeon had injected thorotrast® into the carotid artery for the purpose of encephalography. The percutaneous injection resulted in severe tissue changes, including necroses in the vascular walls. A tumor developed at the site of the lesion, probably as the result of paravasal deposit of thorotrast.® At the time of the removal of the tumor, the wall of the artery was found to be extremely friable and inelastic, but the tumor did not as yet show signs of malignancy. The author suggests that at the sites of storage of the thorotrast® in liver and spleen changes may develop which are similar to those at the site of injection, because of the continuous radioactive effect exerted by the thorotrast.® The author concludes that the use of thorotrast® for the visualization of vessels is no longer permissible, except perhaps in patients in whom life expectancy does not exceed a few years. Percutaneous injection, which involves the danger of small paravasal deposits of thorotrast,® is never advisable.

Klinische Wochenschrift, Heidelberg

26:577-608 (Oct. 1) 1948. **Partial Index**

Thromboplastography, a New Method of Examination in Studies on Coagulation of Blood. H. Hartert.—p. 577.
Symptoms of Pernicious Anemia in Case of Hemolytic Icterus. G. Körner.—p. 583.
Red Blood Picture During the War and After-War Period. H. Vogt and Erika Börm.—p. 586.
Diagnosis of Familial Erythroblastosis and of Abortions and Stillbirths Caused by Rh Factor. P. Dahr.—p. 588.
Lead Content of Blood and of Cerebrospinal Fluid in Experimental Lead Poisoning. G. Straube.—p. 595.
Greater Dissemination of Cholera in Recent Years. H. Brandis.—p. 598.
*Carcinoma of Male Breast After Treatment with Estrogenic Hormone. G. Liebegott.—p. 599.

Carcinoma of Male Breast After Treatment with Estrogenic Hormone.—Liebegott presents the case of a man, aged 66, who was treated for inoperable carcinoma of the prostate by intramuscular implantation of tablets of an estrogenic substance. Two weeks after the first implantation the patient observed a swelling of the mammary glands, which did not subside again. Six months after a second implantation of hormone tablets, which was carried out four months after the first implantation, the right mammary gland was the size of a fist and two nodules could be felt in the upper and outer quadrant of the left breast. Four months later the left breast was amputated and the axillary lymph nodes were removed. Recovery after this operation was uneventful, but histologic examination revealed carcinoma of the breast and metastases in two axillary lymph nodes. The clinical and objective aspects of the carcinoma of the prostate had greatly improved during the treatment with the estrogenic hormone.

26:641-672 (Nov. 1) 1948. **Partial Index**

Normal and Pathologic Histology of Peripheral Sympathetic Nervous System. E. Herzog.—p. 641.
*Hypertrophy of Parotid Glands and Diabetes Mellitus. K. Mellinghoff. —p. 652.
Grand Mal Epilepsy. R. Janzen.—p. 655.
Modification of Gram Staining. H. Knothe and W. Maassen.

Hypertrophy of Parotid Glands and Diabetes Mellitus.—Having observed a decided change in the facial contours of some patients with diabetes mellitus, which was found to be due to enlargement of the parotid glands, Mellinghoff decided to investigate whether this hypertrophy of the parotid glands is of significance in the metabolic disturbance that characterizes diabetes. He presents the histories of 5 patients which suggest that the hypertrophy of the salivary gland in the diabetic patient usually is a part of a syndrome of endocrine disturbances, in which extrainsular disturbances play a part. The superimposed diencephalohypophysial system apparently plays the decisive role. In 3 of the 5 reported cases, a hypophysial factor seemed to be the dominating one; in a fourth case such a factor seemed probable. Cases like the fifth one are now regarded as of primary hypophysial origin. The author considers it as improbable that the enlargement of the salivary glands is the result of a compensatory function for the impaired carbohydrate metabolism, although this has been suggested by some. He is of the opinion that the enlargement of the salivary glands, particularly of the parotid and sometimes also of the lacrimal glands, is a reaction resulting from hormonal stimulation which can be compared with any other distant symptom in the course of endocrine disturbances, such as with exophthalmos, hyperostosis frontalis and striae distensae. The diencephalohypophysial factor seems to be the decisive one, either a primary lesion in this system being responsible or secondary retroaction on this cerebral sphere being involved. Parotid hypertrophy has been observed in obese patients without signs of disturbances in the carbohydrate metabolism, in various endocrine disorders and even after ovariectomy, most probably by the intermediate action of the hypophysial system.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:3813-3912 (Nov. 20) 1949. **Partial Index**

Case of Alcaptonuria. L. S. Hannema.—p. 3820.
Results of Partial Patelectomy. J. B. Mullers.—p. 3824.
Systematic Treatment of Primary and Secondary Syphilis with Penicillin and with Penicillin and Bismuth. Grouping of Patients Requiring Second Treatment. H. A. van Zwijndregt, E. P. van Steenbergen and A. C. M. Stam.—p. 3828.
*Prefrontal Lobotomy (Leukotomy) in 16 Patients with Chronic Schizophrenia. P. S. Eringa.—p. 3844.

Prefrontal Leukotomy in Chronic Schizophrenia.—Eringa reviews observations on 16 cases of chronic schizophrenia, in which leukotomy was performed according to the method of Freeman and Watts. In about half of the patients the operation exerted a favorable influence. One patient died shortly after the operation. The author discusses the personality changes that resulted in these patients and suggests that this operation be considered in cases of severe chronic schizophrenia in which the various types of shock treatments have been without effect.

Nordisk Medicin, Stockholm

40:2133-2188 (Nov. 19) 1948. **Partial Index**

*Treatment of Pernicious Anemia with Special Reference to Hypersensitivity to Liver Extract. H. Malmros and B. Herner.—p. 2138.
Antistreptolysin Reaction. R. Saxholm.—p. 2140.
Streptococcus Agglutination and Antistreptolysin Titer in Primary Chronic Polyarthritis. V. A. Porsman.—p. 2147.
Hepatitis and Polyarthritis. Inger-Louise Marner.—p. 2151.
Thrombosis of Posterior Inferior Cerebellar Artery (Wallenberg's Syndrome). E. C. Astrup.—p. 2156.

Treatment of Pernicious Anemia with Special Reference to Hypersensitivity to Liver Extract.—Malmros and Herner report on 17 cases of pernicious anemia treated perorally with a maintenance dose of 1 or 2 tablets of folic acid and 5 Gm. of a stomach-liver preparation daily. The results were satisfactory in 15 cases observed for over a year. In 2 cases neurologic symptoms developed and injection treatment with liver, interrupted because of hypersensitivity reaction, had to be resumed; the patients were desensitized with strongly diluted and gradually more concentrated solutions of liver extract till the ordinary dose of undiluted liver extract could be given. Injection of 0.5 to 1 cc. epinephrine solution a few minutes before the injection of liver prevented allergic reactions. The neurologic symptoms disappeared on treatment with liver in sufficiently large dosage and in spite of continued administration of folic acid in 1 case, and are ascribed to a deficiency disorder. Folic acid treatment is potentially dangerous because of the risk of neurologic complications. Peroral treatment combining folic acid and stomach-liver preparation is also not without danger. If the treatment is applied, constant observation of the patient is called for. Numbness of the hands and feet or other unpleasant sensations from arms and legs should immediately be reported to the attending physician.

Nourrisson, Paris

36:189-248 (Nov.-Dec.) 1948

Difficulties in Growth of Newborn Babies. L. Ribadeau-Dumas, Héraux, J. Debray and Boeswilwald.—p. 189.

*Neurologic Sequelae of Familial Hemolytic Disease; Integrity of Hepatic Parenchyma Verified Seven Years After Onset of Nervous Symptoms. R. Turpin and H. Duchêne.—p. 203.

Comparative Study of Mortality of Infants During the Periods of 1937-1938 and 1945-1946. Causes of Its Increase. P. Beyer and M. Lagoutière.—p. 212.

Neurologic Sequelae of Familial Hemolytic Disease.—Turpin and Duchêne report a boy aged 6½ years who was admitted to the hospital for a choreoathetoid syndrome with extrapyramidal symptoms of Little's disease and cerebellar disturbances. Involuntary movements and disturbance of speech made the utilization of Binet's test difficult, but, except for this reservation, the mental capacity could be considered normal. Two weeks before the admission of the patient his mother was delivered of her second child, a boy who had kernicterus for one month. Examination of the blood of the parents and of the newborn baby demonstrated isoimmunization of the mother in response to having been pregnant with an Rh-positive fetus. History of the older boy revealed that he had presented icterus for the first days after birth, difficulties in growth and nutrition, insomnia and convulsions and that at the age of 3 he could not walk and could pronounce only a few words with difficulty. A liver biopsy performed on the older boy at the time his younger brother presented icterus demonstrated that structure and function of the cells of the parenchyma were normal. The younger boy, now aged 2, cannot pronounce more than those few words that he had been able to pronounce when he was aged 1; he cannot walk and he can assume an erect position only with support. The younger brother thus presents neurologic disturbances similar to those of his elder brother. In both patients these disturbances may be considered as sequelae of kernicterus. From the case of the older patient and from others cited in literature it is concluded that the association of kernicterus and cirrhosis is an exception which seems to be the result of a local effect of the hemolytic process. This disturbance must be distinguished from the hepatolenticular degeneration in Wilson's disease in which the association of the hepatic and neurologic disturbances may result either from a linkage or from the spread to the liver of neurologic lesions by which certain metabolic centers are affected.

Praxis, Bern

37:907-924 (Dec. 9) 1948

Congenital Superior Radio-Ulnar Synosteosis. G. Meilland.—p. 907.

*Patients with Scarlet Fever Treated at Home with Depot-Penicillin; Experiences from Scarlet Fever Epidemic in Basel in 1948. F. Buser.—p. 912.

Sciatica as Sequela of Focal Necrosis and Mucous Degeneration in Ligamentum Flavum. W. Iff.—p. 915.

Depot Penicillin in Scarlet Fever.—An epidemic of scarlet fever attacked more than 1,000 persons within a few days in Basel in August 1948. There were not enough hospital beds available. Buser therefore treated 61 patients at home, 54 children between the ages of 3 and 14 years and 7 adults. Forty-nine patients were given daily injections of 1 cc. of procaine penicillin in oil (300,000 units) for four to five days, while 12 patients were treated without penicillin. In most of the cases the disease was of medium severity. The initial toxic phase subsided rapidly with return of temperature to normal within forty-eight to seventy-two hours. Complications such as mild nephritis, otitis media and cervical lymphadenitis occurred in only 3 patients (6 per cent) treated with penicillin, while hemorrhagic nephritis, cervical lymphadenitis and phlegmon of the angle of the jaw occurred in 4 of the 12 patients (33 per cent) who were treated without penicillin. There were recurrences of mild fever, probably abortive relapses, in 12 patients (25 per cent) treated with penicillin. Only 14 patients (about 30 per cent) remained definitely free of hemolytic streptococcus after the injections of penicillin. Not a single carrier of hemolytic streptococcus could be freed of the bacteria by oral administration of penicillin. Strict rest in bed was required for only eight to ten days because of the rapid clinical improvement, but convalescence lasted for at least two to four weeks. The depot penicillin makes possible simple and successful treatment of scarlet fever at home. The favorable effect of penicillin on the toxic initial phase was similar to that obtained with a satisfactory antitoxin, but for the prevention and the treatment of complications penicillin is superior to antitoxin and to sulfonamide compounds. For cases of grave septic and toxic scarlet fever a combination of the various methods of treatment is the method of choice.

Prensa Médica Argentina, Buenos Aires

35:2449-2530 (Dec. 31) 1948. **Partial Index**

*Traumatic Cancer of Lung. P. C. Rospide.—p. 2508.

*Prevention of Headache Following Spinal Anesthesia. J. P. Caccia.—p. 2511.

Traumatic Cancer of Lung.—Rospide reports a man, 59 years of age, who suffered a severe trauma to the region of the left half of the chest. The trauma was followed by symptoms of pulmonary disease. A roentgenogram taken seven months later revealed a tumor shadow on the traumatized side. A biopsy taken by bronchoscopy showed basal cell epithelioma. The mechanism of the development of cancer in this case was probably one of trauma stimulating neoplastic proliferation of the lung which was constitutionally predisposed to cancer.

Prophylaxis of Headache Following Spinal Anesthesia.—Caccia prevented headache after spinal anesthesia by administering vitamin B intraspinally. He mixed 2.2 cc. of vitamin B in sodium chloride solution, which contained 100 mg. of the substance, with the anesthesic solution to be injected intraspinally. The anesthetic effect was superior both in intensity and in duration. Headache was prevented. The author obtained favorable results from this method in more than 100 cases.

36:63-100 (Jan. 14) 1949. **Partial Index**

*Abscess of Lung and Abscess of Brain. M. Joselevicz and M. Kleimans.—p. 74.

Abscess of Lung and of Brain.—A man 34 years of age presented symptoms of bronchopulmonary disease, cough and fever which were controlled by penicillin. The roentgen examination of the thorax showed a cavity in the left lung. Examination of the sputum for tubercle bacilli was negative. Two months later the patient reentered the hospital complaining of loss of weight, aggravation of the bronchopulmonary symptoms, general cutaneous hyperesthesia and, for the preceding four days, constant acute headache and left hemiparesis. The cerebrospinal fluid was normal. Within four days meningitis developed, and the patient died in coma. An isolated, small abscess of the upper lobe of the left lung and an isolated abscess of the right cerebral hemisphere were found at necropsy. The case is unusual because of the development of only one cerebral abscess complicating the pulmonary abscess and also because of the seat of the abscess.

Presse Médicale, Paris

57:1-16 (Jan. 1) 1949. **Partial Index**

*Treatment of Late or Complicated Syphilis with Penicillin. C. Huriez and J. Dujardin.—p. 1.

Problem of Poliomyelitis and Orientation of Research. P. Lépine.—p. 2.

Frontonasal Encephalomeningocele Healed by Meningeal and Bone Plastics. G. Lazorthes, F. Deodati and P. Fage.—p. 3.

Penicillin in Late or Complicated Syphilis.—Huriez and Dujardin treated 200 patients having late or complicated syphilis with penicillin. The drug had a definite cicatrizing effect on tertiary skin lesions in 20 patients. In 28 of 33 cases of syphilitic meningitis, the lymphocytosis was reduced. In cases of this type a prolonged course with massive doses (10,000,000 units in twenty-five days) is to be preferred to the "standard" dose of 2,400,000 units. In 7 of 10 cases of cerebral syphilis the psychiatric syndrome was improved considerably, while the neurologic signs did not subside. Results obtained in 9 cases of atrophy of the optic nerve and in 3 cases of interstitial keratitis were not as constant and striking as those reported by American authors. Penicillin proved effective in 27 cases of tabes and particularly in those with lightning pains and in those with radicular attacks. Penicillin was well tolerated by patients

with cardiovascular syphilis associated with renal lesions, and the drug was fairly effective in syphilitic aortitis. Except for an occasional rise of temperature in 17 patients untoward reactions were not observed in the treatment of late syphilis with penicillin. Results obtained with penicillin in syphilitic patients with involvement of the liver, diabetes mellitus, and in pregnant syphilitic women were more satisfactory than those obtained with heavy metals. The high cost of the drug is largely counterbalanced by its rapid and effective action, particularly in cases with meningeal reaction, and also by the absence of toxic accidents. Penicillin is the drug of choice in complicated cases of syphilis.

Schweizerische medizinische Wochenschrift, Basel

78:1237-1272 (Dec. 24) 1948. **Partial Index**

Effect of Alloxan in Body of Animal. A. Gigon and W. Musfeld. —p. 1237.
Osteomalacia with Paroxysmal Hypopotassemic Paralysis of Muscle; A New Syndrome. W. Hadorn.—p. 1238.
Penicillin and Allergy. L. Michaud and P. H. Crausaz.—p. 1242.
Periodicity in Pathology of Infection. G. Miescher.—p. 1245.
Contribution to Giant-Fillicular Lymphoblastoma; Brill-Symmers Disease. P. H. Rossier and O. Spühler.—p. 1246.
Sympatol (Hydroxyphenylmethylamino-Ethanol Hydrochloride)-Histaminemia in Psychopathy and Vegetative Disorders; Sixth Report on Epinephrine-Histamine-Counterregulation. H. Staub and H. Baur. —p. 1249.
Methemoglobinemia. A. Vannotti.—p. 1252.
*Anatomic Observations in Fatal Cases of Bee and Wasp Sting. C. Wegelin.—p. 1253.

Fatal Cases of Bee and Wasp Sting.—Wegelin reports 2 fatal cases of bee sting in men aged 33 and 38 and 1 fatal case of wasp sting in a man aged 39. The first patient was stung in the hand, the second in the neck and the third in the forearm. Death resulting from a single sting in all 3 cases occurred within the first hour in the first and third case and within five days in the second case. In the second case an extensive lobular pneumonia followed the initial unconsciousness, and coma persisted until death. In all 3 cases life-threatening condition developed rapidly. Nausea, cyanosis of the lips, vertigo, vomiting, pallor and sweating were followed by coma. The second patient was almost pulseless, and respiration stopped temporarily; urticaria occurred over the trunk. Necropsy revealed hyperemia of the internal organs, edema of lungs and of larynx, petechial hemorrhages of skin and mucosa and occasionally of serosa, meninges and brain, and emphysema of the lungs. The first-mentioned changes suggest severe damage to the capillary walls; the pulmonary emphysema is suggestive of an allergic reaction. The poison is absorbed rapidly by the blood, as was demonstrated in the patients bitten in the upper extremity.

Semaine des Hôpitaux de Paris

25:1-50 (Jan. 2) 1949. **Partial Index**

Clinical Study of Serum Cholesterase. H. Bénard, P. Desgrez, A. Gajdos and others.—p. 1.
Thymol and Cephalin-Cholesterol Flocculation Tests in Hepatic Disorders. H. Bénard, C. Albahary, A. Gajdos and others.—p. 7.
*Methionine in Treatment of Cirrhoses. H. Bénard, A. Gajdos and P. Rambert.—p. 12.
Acidosis Induced in Cirrhotic Patients by Large Doses of Methionine. H. Bénard, A. Gajdos, P. Rambert and H. Pequignot.—p. 17.

Methionine in Cirrhosis.—Bénard and his co-workers treated 7 patients, 4 men and 3 women between the ages of 30 and 70, who had cirrhosis of the liver with methionine. Five to 10 Gm. of the drug was administered daily by mouth. In 5 patients diuresis and general condition were considerably improved. In the 2 other patients the treatment failed. The drug was well tolerated except in 1 patient. Acidosis resulted from large doses of methionine in all patients but was not associated with clinical symptoms except in 1 patient in whom mental confusion took place. Confusion subsided after administration of sodium bicarbonate. In spite of the favorable effect of methionine, it does not cure the cirrhosis. The ascites did not disappear completely in any of the cases and there was no return to normal of the function tests. The drug does not seem to affect the late course of the disease. The biochemical mode of action of methionine on the liver is still obscure. It is probable that the drug may play the part of an agent of transmethylation because of its easily detachable methyl radical. It also participates in the synthesis of choline. Combined with other methods of treatment methionine is capable of improving the condition of cirrhotic patients.

Tuberkulosearzt, Stuttgart

2:777-830 (Dec.) 1948. **Partial Index**

Dysontogenesis and Generalized Tuberculosis. E. Auge.—p. 780.
*Tuberculous Pleuritis and Its Relationship to Tuberculosis in Bones and Joints. H. Holzhauer.—p. 783.
"Rheumatism" and "Sciatica" in History of Tuberculous Spondylitis. W. Rojczyk.—p. 788.
Tuberculous Meningitis and Its Relationship to Seasons. Observations on 44 Cases of the State Hospital "Mammolshöhe" for Children and on 124 Cases of University Clinic Frankfurt on Main During Periods of 1929 to 1946, Respectively 1935 to 1946 included. S. Rockl.—p. 791.

Pleurisy and Tuberculosis in Bones and Joints.—Holzhauer reports 309 patients with tuberculosis in the bones and joints who were admitted to the sanatorium Sonnenblick in Marburg (Lahn) during the period 1932 to 1947 and who presented signs of previous pleurisy. Changes in the pleura were revealed by past history in 28 patients (3.6 per cent), by history and roentgenologic examination in 154 patients (20.3 per cent) and by roentgenologic examination alone in 187 patients (24 per cent). Of 172 patients between the ages of 16 and 45 years who had pleurisy, 105 (61.2 per cent) were between the ages of 16 and 25 years. In 101 of 182 patients—i. e., in 55.5 per cent—the interval between the manifestations of pleurisy and those of tuberculosis in the bones and joints was one year or less. In the following years this percentage decreased, and only 8 patients (4.4 per cent) manifested tuberculosis in the bones and joints in the fourth year after pleurisy. A casual relationship between tuberculosis of bones and joints and a previous attack of pleurisy must be considered at least for a period of two years. An attack of pleurisy which at this interval is followed by a chronic disease of the bones and joints should arouse suspicion of tuberculous origin. The maximum incidence of pleurisy in patients between the ages of 16 and 25 and the hematogenous tuberculosis of the bones and joints which followed the pleurisy suggest that this type of pleurisy should be considered as a manifestation of the secondary stage.

Wiener klinische Wochenschrift, Vienna

60:837-852 (Dec. 31) 1948

Anatomicopathologic Observations in Cases of Tuberculous Meningitis Treated with Streptomycin. H. Chiari.—p. 837.
Treatment of Miliary Tuberculosis with Streptomycin. O. Ruziczka. —p. 840.
*Observations on Fundus Oculi of Patients with Tuberculous Meningitis and Miliary Pulmonary Tuberculosis Treated with Streptomycin. F. Mejer.—p. 842.
Results of Cochlear and Vestibular Examination After Treatment with Streptomycin. E. H. Majer.—p. 844.

Fundus Oculi of Tuberculous Patients Treated with Streptomycin.—Mejer examined the fundi of 42 children, 15 with tuberculous meningitis without definite milary pulmonary tuberculosis, 19 with tuberculous meningitis and miliary pulmonary tuberculosis and 8 with miliary pulmonary tuberculosis not associated with tuberculosis meningitis, who were treated with streptomycin. Choked disks were observed in more than one third of the patients with tuberculous meningitis whether or not it was associated with miliary pulmonary tuberculosis. Swelling of the papilla in the initial stage of the disease is of no importance with regard to diagnosis and prognosis, while complications may be expected in the presence of a choked disk. Late changes in the papillae constitute objective evidence of complications in the course of healing. Typical miliary choroidal tubercles or so-called solitary choroidal tubercles were observed in more than one third of the patients and most frequently in those with miliary pulmonary tuberculosis whether or not it was associated with tuberculous meningitis. In the majority of the children resolution of the foci was rapid after the initiation of the treatment with streptomycin, and the course of the disease was as a rule favorable. Complications or recurrences were observed in those children in whom resolution was slow. There were no toxic lesions of the optic nerve which could have been ascribed to the streptomycin. It is likely that those reported in the literature were sequelae of complications of the course of healing.

Book Notices

Shock and Allied Forms of Failure of the Circulation. By H. A. Davis, M.D., C.M., F.A.C.S., Associate Professor of Surgery, Director, Division of Surgery, Graduate School of Medicine, College of Medical Evangelists, Los Angeles Division. Cloth. Price, $12. Pp. 595, with 55 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1949.

This work gives an extensive if not complete analysis of the pertinent literature. Each of the seventeen chapters closes with a bibliography. The text contains fourteen tables and fifty-five figures; one wishes the photomicrographs were better. A brief historical review is followed by twenty-six proposed definitions for shock, including one by the author.

Shock is recognized in numerous clinical conditions, and classified in seven categories: traumatic, hemorrhagic, burn, obstetrical, medical, anesthetic and operative. The author explains shock as "the triphasic response to stress"; i.e., to various conditions which disturb the internal environment of the organism. "The final result of all forms of stress, if sufficiently severe, will be anoxia of varying degree." The first phase is that of anoxic injury to cells. The second or catabolic phase is breakdown of body constituents, evidenced by increased nonprotein nitrogen, urea, creatinine and polypeptides in the blood, hemolysis, hemoglobinuria and fever. The third or anabolic phase is reparative: regeneration of cells and the reestablishment of homeostasis by physiologic agencies.

Some will inquire by what mechanism stress produces anoxia and why anoxic effects on endothelium are of no importance. The triphasic description may fit cases reaching recovery, but those progressing to early fatality can hardly be described as triphasic.

Six chapters present details concerning degrees and stages of shock, its physiologic, biochemical and pathologic features, the effects of anoxia and other factors leading to irreversibility. Eight chapters are devoted to failing circulation incident to various clinical conditions. The findings of others are cited freely, and in most cases objectively. These discussions are both theoretic and practical, reflecting a broad survey of the literature. The final chapter, 60 pages, discusses the prevention and management of shock, therapeutics, restoration of blood volume, choice of anesthetics and contraindications for surgery in shocked patients.

The author recognizes anoxia, hemoconcentration, disturbances of fluid balance and abnormal distribution of electrolytes as factors in shock, but explanations of their origins and relationships are fragmentary or lacking. The extensive review of pertinent literature gives this treatise a scholarly tone, but by myopic perspective on major versus minor contributions the author fell short of a scholarly achievement. Appreciation of the significance of capillary phenomena as depicted by Starling, Krogh, Landis and others would have enhanced the value of this work. These defects do not lessen the value of this book to medical and surgical practitioners and specialists who inevitably must deal with shock. For them it was written, and it contains much practical information applicable to the prevention and management of shock.

The Commonsense Psychiatry of Dr. Adolph Meyer. Fifty-two Selected Papers edited, with Biographical Narrative, by Alfred Lief. Cloth. Price, $6.50. Pp. 677, with portrait. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18, 1948.

A lay writer attempts to delineate the special historical position in psychiatry of a great man who developed far ahead of his time. The job is well done, and many of Dr. Meyer's most obscure writings are made more understandable. However, Meyer's work could have been summarized in a book of less than 670 pages by a psychiatrist, for today we may summarize his work that still lives in a few paragraphs. The modern psychiatrist understands Dr. Meyer's struggles to formulate a dynamic holistic approach to the human being and understands the difficulties of teaching such an approach. But he finds it difficult to fathom how a pioneer suddenly stopped short in his progress and became antagonistic to psychodynamic formulations of unconscious forces. For this other minds were necessary.

Obstetrics and Gynaecology: A Synoptic Guide to Treatment. By Beatrice M. Willmott Dobbie, M.A., M.B., F.R.C.S. Cloth. Price, 20s. Pp. 358, with 22 illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C.1., 1948.

The author stresses that this book is intended for the general practitioner and particularly those that deal with the patient in the home. It is added, "The book deals almost exclusively with treatment, and lays a much needed emphasis on preventive treatment." There are few illustrations. Special commendation is offered for the lack of quotations and prior reference. Bibliography is avoided conveniently. The explanations are confidently expressed and carry the impression that the author writes from first hand experience.

Portions of the wording about the method of practice are certainly not fitting to those who do hospital deliveries exclusively.

In one hospital there were 62 cases of failed forceps. The fetal mortality from breach deliveries in the same hospital was 18 per cent. These two reports cast doubt on the quality of obstetrics in that community, but do give additional experience to the qualified obstetrician.

The chapters are appropriate in their sequence. The book has an appeal in its literary form and is easily read. It is not as complete in some portions as one might desire.

Many physicians doing obstetrics could profit by study of the diagnoses, the methods of treatment and the prognoses as presented by this writer.

Orthopsychiatry 1923-1948: Retrospect and Prospect. Prepared under the Editorial Supervision of Lawson G. Lowrey, M.D., and Victoria Sloane Fabrikoid. Price, $8.50. Pp. 623. American Orthopsychiatric Association, Inc., 1790 Broadway, New York 19, 1948.

This volume, marking the celebration of the twenty-fifth anniversary of the American Orthopsychiatric Association, provides essays on various aspects of the growth and development of orthopsychiatry through the past quarter of a century; twenty-nine eminent contributors have made this an impressive panorama. The whole volume indicates what stature and significance the orthopsychiatric movement has attained.

Orthopsychiatrists have reason to be proud of their twenty-five years of achievement. From simple beginnings with the study of conduct difficulties of delinquent children, the movement has expanded into the broad field of endeavor now represented by the child guidance clinics throughout the nation. Hand in hand with this physical expansion have gone refinement of treatment technics and a deepening of our understanding of the dynamics of human personality. "Orthopsychiatry 1923-1948" tells this story.

Orthopsychiatric points of view are coming to have more and more influence on pediatric thought and education. Thus pediatricians will welcome this opportunity to read about the origins of the movement, the manner of development of the child guidance clinics and the genesis of the underlying concepts. The keynotes of orthopsychiatry are sounded throughout the book: (1) that the surest attack on the problem of mental illness in our society is one of prevention, through mental hygiene work with children, and (2) that members of all the professions concerned with child care (psychiatry, psychology, social work, pediatrics, education, etc.) can most profitably work together in teams, to the common end of studying and treating childhood behavior problems. The emphasis throughout is primarily on treatment.

The book is large and perhaps not easily read. It is, nevertheless, full of rewarding material. Some of the articles are short, some long; some confine themselves largely to history and descriptions of clinical and teaching facilities; others discuss underlying concepts at some length.

From such rich and varied fare each reader will choose different essays to single out as individually noteworthy. The reviewer was particularly impressed by the following: William Healy and Augusta F. Bronner's story of the "Birth and Growth of an Idea—the Child Guidance Clinic"; Ben Karpman's scholarly review of "Milestones in the Advancement of Knowledge of the Psychopathology of Delinquency and Crime"; the

"Symposium—The Role of a Scientist in Society" with papers by Franz Alexander, Lawrance E. Cole and Margaret Mead, and Samuel J. Beck's evaluation of "Rorschach's Test in This Anniversary Year." Special note should also be made of the two papers on interrelationships between pediatrics and orthopsychiatry. For stimulating reading in an important field this book is recommended to everyone professionally concerned with children.

The 1948 Year Book of General Medicine. Edited by Paul B. Beeson, M.D., and others. Fabrikoid. Price, $4.50. Pp. 821, with 158 illustrations. Year Book Publishers, 304 S. Dearborn St., Chicago 4, 1948.

Part I of the 1948 Year Book of General Medicine contains a review by Paul B. Beeson of the literature on the subject of chemotherapy and antibiotic therapy in various infectious diseases, and a review of literature on the use of para-aminobenzoic acid and chloromycetin in typhus and Rocky Mountain spotted fever. One chapter is devoted to the literature on the effectiveness of vaccine against influenza. There is also a brief discussion of more recently recognized and less widely known clinical entities such as Q fever, rickettsialpox, leptospirosis and toxoplasmosis. J. Burns Amberson reviews in part II diseases of the chest, the normal and abnormal physiology of respiration, the normal and abnormal anatomy and the diagnostic and therapeutic procedures. There is an adequate discussion of the vascular and circular disturbances which embrace such clinical entities as the tetralogy of Fallot, pulmonary arteriovenous aneurysm, pulmonary embolism, asthma, neoplasms and cysts and infectious diseases. A separate chapter is devoted to the subject of BCG vaccination. Literature on diseases of the blood and blood-forming organisms and diseases of the kidney is surveyed by George R. Minot and William B. Castle. A chapter is devoted to erythroblastosis fetalis and hemolytic anemias. Tinsley R. Harrison, in part IV, devoted to diseases of the heart and blood vessels, reviews in considerable detail the recent advances made in the field of congenital heart disease. This is followed by disorders of the blood vessels including hypertension, arteriosclerosis and disturbances of the circulation of the brain and the extremities. There are chapters dealing with normal and abnormal physiology, congestive heart failure and the arrythmias. A special chapter is devoted to the anticoagulant therapy. Literature on diseases of the digestive system and metabolism is reviewed by George B. Eusterman. The therapy of gastric duodenal ulcer including vagotomy and various other methods is considered. Infectious hepatitis, biliary liver cirrhosis and lipotropic therapy of fatty liver are discussed.

The small volume offers to the general practitioner and the internist a comprehensive reference to the recent advances in the field of internal medicine.

Osteo-Arthritis of the Hip-Joint. By H. Warren Crowe, D.M., B.Ch., M.R.C.S. Cloth. Price, 35s. 6d. Pp. 70, with 5 illustrations and 24 plates. George Pulman & Sons, Ltd., 24-27 Thayer St., London, W. 1; Distributed by Rolls House Publishing Co., Ltd., Rolls House, 2 Breams Bldgs., London, E.C. 4 [n.d.].

This book is based on Crowe's personal experience with a large number of cases of osteoarthritis of the hip joint. He asserts that degeneration is not the main causal factor, that the relief of the patient's pain should never be the primary object of therapy but rather the arrest of the pathologic process together with measures of rehabilitation.

The scope of the book is chiefly medical. With two exceptions, operations are not described, because as soon as the methods advocated by Crowe become generally used the surgeon will no longer have to advocate fixation of the joint as the only remedy for intolerable pain.

The basis of this book is a series of 500 cases treated since 1927 with the full use of the facilities available at the Charterhouse Rheumatism Clinic.

Harry Coke's biochemical researches have been the main factor in deciding such issues as the degree of infection, of hepatic dysfunction or of endocrine imbalance. His differential sedimentation test has been helpful.

Osteoarthritis of the hip joint is a slow progressive disease leading to crippling deformity characterized by a variable proportion of inflammatory and of degenerative processes which involve all the joint structures associated with atrophy of muscle nerve irritation and new bone formation. The most important of the pathologic processes is the synovial inflammation.

For the past twenty-five years, Crowe has treated every patient having osteoarthritis of the hip joint with vaccines, from time to time adding other useful auxiliary methods. In 60 or 70 per cent of patients who persisted in the treatment for twelve months, the disease has been arrested.

In addition to the intra-articular injections, exercises have been devised for increasing the strength of the muscles and maintaining mobility, more especially for counteracting the tendency of adductor spasm to produce the apparent shortening of the affected limb. Special instruments for separating the legs, worked by the patients themselves, have also been of great value, especially when both hips are involved. Lastly, the operation devised by Tavernier, of section of certain branches of the obturator nerve, has been performed with encouraging results, as the pain in the joint and the adductor spasm have been completely relieved.

The operation consists in section of the sensory branch of the obturator nerve which supplies the hip joint. The obturator operation was apparently first performed by Vulpius and Stoffel for displastic paraplegia. Seelig later divided the nerve intrapelvically.

Crowe gives full credit to Grant Waugh for introducing a valuable method which has gone a long way in revolutionizing the treatment of osteoarthritis. He found that the p_H of fluid aspirated from a joint with acute synovitis was on the acid side of normal, whereas in the joint with chronic disease the reaction had become alkaline. Grant Waugh injected lactic acid into the joint cavity. Crowe and Koch substituted first acid potassium phosphate and then the magnesium salt.

Report of the Sanitary Commission of Massachusetts 1850. By Lemuel Shattuck and others. With a foreword by Charles-Edward Amory Winslow. [Dutton and Wentworth, State Printers, Boston, 1850.] Cloth. Price, $4.50. Pp. 321. Harvard University Press, Cambridge, Mass., 1948.

This republication of the record of the sanitary commission of Massachusetts, dated 1850, is particularly timely as we approach the centennial anniversary of its publication. It is generally credited to Lemuel Shattuck and is known as the Shattuck report. Almost a century ago it made many fundamental proposals which are recognized as the essentials for public health organization and procedure today. Most notable was its proposal for creation of state and local boards of health, which were then nonexistent. Even today local boards are in such a state that their further development and extension is a major public health objective.

The Shattuck recommendations regarding vital statistics, community sanitation, health of the school child, training of nurses, house and slum clearance and medical research are still the principal areas in which medical progress is being made today.

The book is beautifully printed and bound with a frontispiece reproduction of the cover and title page of the original report, the latter containing a pencilled notation in brackets, "By Lemuel Shattuck." Many of the original illustrations are reprinted, as are the tabulations.

This is an epoch-making document in the history of public health. It can be recommended for study today by all those concerned with the progress of public health services from the present date onward. An honest appraisal of the progress that we have made in the hundred years since the Shattuck report would force the acknowledgment that in the fundamentals basic to further public health work we have made relatively little progress and that we had better look to these matters before we spread ourselves out more thinly over broader areas. Until we have a satisfactory status of vital statistics, public health laboratory services, communicable disease control, maternal and child health protection, community sanitation and health education—the six fundamentals—and until we have qualified public health units in all our counties we had better put away grandiose tones of a superbureaucracy for the alleged delivery of mythical medical care to all the people.

We need a modern Lemuel Shattuck to give us an incisive and comprehensive picture of the status of public health progress today as Shattuck gave it in this report to his contemporaries a century ago.

Your Baby: The Complete Baby Book for Mothers and Fathers. By Gladys Denny Shultz, Contributing Editor, Ladies' Home Journal, and Lee Forrest Hill, M.D. Photography by Joseph di Pietro. Line Drawings by Reisie Lonette. Cloth. Price, $3.50. Pp. 278, with illustrations. Doubleday & Co., 14 W. 49th St., New York 20, 1948.

Described as the first book to recognize that babies have two parents, this volume might well also be termed probably the most complete of its kind. It carries parents through the various stages of motherhood and fatherhood from part 1, "A Baby on the Way," to the point where babyhood ends, at age 6. Illustrative of the detailed treatment is part 4, "Newborn to Yearling," in which parents are told "what to do" each month of the first year. There are ten parts, the last being a 34 page record section in which doting parents can enter minute details of the youngster's progress, including two pages devoted to mental, physical and nervous development.

Written in an easy, friendly and sympathetic style, the book should prove of much value both as a source of practical information for parents and as prophylaxis against the jitters of expectancy. Certainly it is an admirable mouthpiece for the busy physician, since the answers are exactly what he would give if it were humanly possible in the relatively brief interviews provided during prenatal, confinement, postnatal and pediatric periods.

In addition to excellent photographs that illustrate many of the instructions, attractive line drawing are scattered throughout the pages. Two especially helpful parts are those dealing with formulas and recipes with full details of preparation, and ailments and accidents.

This book can be recommended unreservedly to expectant mothers and fathers.

Technik der kinderärztlichen Differentialdiagnostik für Studierende und Praktische Ärzte. Von Prof. Dr. Alphons Solé, Primarius des Karolinen-Kinderspitales der Stadt Wien. Cloth. Price, 20 Swiss francs. Pp. 384. Benno Schwabe & Co., Klosterberg 27, Basel 10; imported by Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1948.

This book is written primarily for the general practitioner. With that objective in mind, the author reviews the basic facts about the child with special reference to physical examination and differential diagnosis.

The author devotes various chapters in his book to the discussion of rashes, disturbances of the sensorium, hemorrhage, anemia, cyanosis, respiratory disturbances, vomiting, diarrhea, convulsions, paralysis, icterus, edema and fever.

There are also chapters on examinations of the mouth and throat, the bones and joints, the abdomen, liver and spleen. The author also discusses the reasons for failure to gain weight and the significance of tuberculin reactions. Of special value are his tables on differential diagnosis.

Throughout the book, the author stresses the fact that the child is not a miniature adult and deplores this widespread misconception, which has been the source of many errors in diagnosis. He presents the child in a special pediatric setting with individual characteristics both in health and in disease.

Chemical Analysis: A Series of Monographs on Analytical Chemistry and Its Applications. Editorial Board: Beverly L. Clarke, I. M. Kolthoff, L. T. Hallett and Hobart H. Willard. Volume IV: Organic Reagents Used in Gravimetric and Volumetric Analysis. By John F. Flagg, Ph.D. Cloth. Price, $6. Pp. 300, with 11 illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, 1948.

This volume is the fourth in a series on analytical chemistry and its applications. It deals only with those organic reagents used as precipitants for gravimetric and volumetric analysis of inorganic ions.

The book is divided into two sections; namely, "General Discussion" and "Special Reagents." The first section deals largely with the theory of this method of inorganic analysis, discussing the types of salts formed by the different reagents, the various factors influencing salt formation, the structure and stability of the salt formed, the different methods employed in separation of inorganic ions and the general technics involved for a satisfactory analysis of this type.

In contrast to the theoretical considerations in the first division of the book, the second section deals entirely with the practical side of analysis. Each of twelve chapters are devoted to a specific organic reagent or class of reagents, and detailed procedures are given for their use with various metals. A single chapter is devoted to seven organic reagents whose application is somewhat limited. One chapter also describes the use of organic precipitants for several anions.

The author has given numerous bibliographic references which seem to be rather complete through 1945, and this adds much to the usefulness of the book.

Elementary Anesthesia. By W. N. Kemp, M.D.C.M., Consultant Anesthetist, Children's Hospital, Vancouver, B. C. Cloth. Price, $5. Pp. 289, with 100 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

This book represents the best judgment of the author, an experienced anesthesiologist, in presenting, on the basis of not only his own experience but also publications which appear valuable to him, the information that he considers is most important for the anesthesiologist. He has kept his text to the minimal amount that it is probably possible to have and still cover the entire field of activity of the present day anesthesiologist in clinical practice. One hundred illustrations are used to emphasize the points the author considers of moment. This book will be valuable to beginners in anesthesiology. It is a welcome addition to the too small list of books on the subject.

Health Instruction Yearbook 1948. Compiled by Oliver E. Byrd, Ed.D., M.D., F.A.P., H.A., Professor of Health Education, and Director, Department of Hygiene, School of Education, Stanford University, Stanford, California. Foreword by Ray Lyman Wilbur, M.D., Chancellor, Stanford University. Cloth. Price, $3.50. Pp. 320. Stanford University Press, Stanford, California; Oxford University Press, Amen House, Warwick Square, London, E.C. 4, 1948.

This is the sixth in a series begun in 1943. They are excellent, if not essential, books for the library of the public health officer, the medical writer, the social worker or any one who is concerned with medical progress, social advances and the health of the people. If the reader remembers that when he wants the 1947 material he will look for it in the 1948 Year Book, an anomaly which the publishers have stubbornly refused to correct, he will find these volumes serviceable and interesting.

The Practice of Physical Medicine. By Heinrich F. Wolf, M.D., Consultant, Department of Physical Therapy, Mount Sinai Hospital, New York. Cloth. Price, $5. Pp. 322, with illustrations. Wilcox & Follett Co., 1255 S. Wabash Ave., Chicago 5, 1947.

This volume contains the opinions of the author regarding the practice of physical medicine, but there is some question whether all of his opinions will coincide with those of the majority of physiatrists, especially in the treatment of pneumonia, asthma, rheumatism and other conditions. Eight chapters are included, among which are chapters on hydrotherapy, mechanotherapy, light therapy, electrotherapy and minor electrosurgery. There is much value in the book, and it can be used as a reference.

Gehirn und Rückenmark: Leitfaden für das Studium der Morphologie und des Faserverlaufes. Von Emil Villiger. Bearbeitet von Eugen Ludwig, o.ö. Professor der Anatomie an der Universität Basel, Basel. Fourteenth edition. Cloth. Price, 36 Swiss francs. Pp. 481, with 326 illustrations. Benno Schwabe & Co., Klosterberg 27, Basel, 1946.

This book deals mainly with the morphology of the brain and spinal cord. It contains an enormous amount of information enhanced by illustrations. The first ten editions were written by Professor Villiger. Since his death, in 1931, Professor Ludwig has handled the revision of the book. This volume is of great value to anatomists, neurologists and neurosurgeons.

Baby Book. Prepared by New York State Department of Health Bureau of Maternal and Child Health. Paper. Pp. 48, with illustrations. New York State Department of Health, Albany, N. Y. [n.d.].

This is a handy, attractively made, concise and authentic little book prepared by the Bureau of Maternal and Child Health of the New York State Department of Health and reviewed and approved by the Committee on Public Health and Education and the Committee on Child Welfare and other representatives of the Medical Society of the State of New York. The book contains no indication of its availability outside of the state; within the state it is undoubtedly distributed by the state department of health.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PREVENTION OF CORONARY SCLEROSIS

To the Editor:—**Have cardiologists agreed on prophylactic "do's or don'ts" in regard to coronary sclerosis?** **Odell J. Kirksey, M.D., Mulberry, Ark.**

ANSWER.—Universal agreement is lacking because we know so little about the etiology. It is wise to think in terms of two types of "sclerosis." One is arteriosclerosis, which is usually associated with age and heredity; the second is atherosclerosis, which may be thought of more as a disease than as a natural process. The second type admittedly will accelerate arteriosclerosis and possibly permits the greater preventive endeavor. It occurs in a younger age group.

Arteriosclerosis is considered to be a degenerative process, possibly also influenced by an inflammatory process due to a toxic action of intermittent disease (Aschoff, Virchow, MacCollum). Wear, or aging, with or without the inflammatory process, is considered by Virchow to be the result of stress and strain. There is a loss of elasticity of the arteries, replacement by fibrous tissue and ultimately even by calcium deposits. This type is arrived at in old age, and, while in certain families the condition develops earlier than usual, at present it is considered unresponsive to therapeutic measures. When the coronary arteries are involved, and if coronary thrombosis with infarction occurs, it is possible to institute procedures which will minimize the harmful results in some cases; while in some respects this does not alter the original process of arteriosclerosis, it does favorably alter the results and constitutes in some measure a retardation of the effects of arteriosclerosis.

Atherosclerosis is often considered to be synonymous with arteriosclerosis, and the two conditions may coexist. Atherosclerosis is probably the most commonly associated condition which accelerates the arteriosclerotic process. Atherosclerosis is attributed by Leary to accumulations of cholesterol in the intima. Winternitz earlier described yellow streaks in the intima which consist of newly formed connective tissue and fat-laden wandering cells (Morgan). While these two conditions may be independent or inseparable, from a clinical point of view the approach to both problems is the same. It is agreed that certain diseases accelerate both conditions, and for purposes of discussion it is unnecessary further to differentiate atherosclerosis from arteriosclerosis. The condition is accelerated by diabetes mellitus, obesity, hypothyroidism, overwork, stress and strain, hypertension, rheumatic heart disease, syphilis and many other toxic, infectious and metabolic diseases. Prophylactic measures are obvious in the prevention or amelioration of any or all of these accelerating diseases, together with the correction of modes of living associated with excessive labor or mental stress and strain. A notable example of considerable preventive measures being employed to prevent coronary disease is in the highly successful treatment of syphilis with penicillin. It is logical to expect that the current widespread use of antibiotics in almost all infectious disease will have an ultimate prophylactic influence on coronary artery disease. It is generally considered good practice to correct the obesity factor in patients showing signs of arteriosclerosis. How much reversal of the condition is to be accomplished by correcting obesity after coronary arteriosclerosis has occurred is conjectural, but it is good practice within certain limits.

The general principle of temperance in all things is a good rule to follow. Not only will this help retard the arteriosclerotic process, when the factors of intemperance accelerate it, but it will permit the patient to get along with whatever disability he may already have. Living within one's physical capacity is a good rule. There is rather general acceptance of the thesis that the stress and strain of business account for the current high incidence of coronary thrombosis in executives. Unhappily, not all of the stress and strain of business is induced by competition from outside business relations. The pyramidal system of authority, with constant and unwise pressure "for results," causes American business men to work under unnecessary tension, and often when they should be at home. No answer has been secured as to why coronary thrombosis develops in men at a rate of almost 2 to 1 compared with women. Whether this is due to less stress and strain, or to some glandular influence or lack of it, remains to be determined.

ANESTHESIA AND ROENTGENOLOGY

To the Editor:—**The medical staff of our hospital is having a discussion with our radiologist on the dangers incident to the administration of ether anesthesia in the fluoroscopy rooms of the x-ray department. Sparking from the switches has been observed recently, and this may be an explosive hazard. The members of the medical staff feel that ether anesthesia presents far less physiologic hazard to many patients than do the other general anesthetic agents, especially when complete muscular relaxation is desired as for fracture work, even considering the explosive hazard, and it is their desire to continue to use ether anesthesia when it is deemed necessary. To minimize the explosive hazard the staff has made a number of recommendations. The staff has made inquiries of thirteen comparable hospitals in the area relative to this problem, and it appears that this staff has been following precautions equal to, if not superior to, those of the other hospitals. Can you supply information as to the number of ether anesthetic explosions that have been reported in any one year, with especial reference to such explosions occurring in fluoroscopic facilities? What concentration of ether is necessary for the explosion point? What relation does humidity play in the problem? What is considered the relative mortality between ether, nitrous oxide and oxygen and thiopental sodium when given to the point of muscular relaxation—in the average adult, in the young and in the aged? What particular precautions would be advised during such ether anesthesia?**

John W. Bunting, M.D., Alpena, Mich.

ANSWER.—Only occasionally is the anesthetist faced with the necessity of administering an anesthetic agent while roentgenologic equipment is in use and sparks are therefore being generated. When such a necessity arises in the hospital, it is usually either in the operating room or the roentgenologic laboratory. Whatever the situation in the hospital, the anesthetist is always aware that where there is a spark there is danger of explosion. Such a disaster is so serious that avoidable risks of it should not be taken and all possible precautions against it should be observed. The precautions are both positive and negative.

Among the negative measures, the first can be stated in the form of a rule: No inflammable anesthetic agent should be administered in a room where roentgenologic equipment is being used. Accordingly, some of the commonly employed agents that should not be used near "live" roentgenologic equipment include ether, alone or in combination with any other gas, ethyl chloride and cyclopropane. Moreover, use of chloroform in these circumstances is not advised, although that agent is not inflammable. The darkened condition of the room makes it impossible to observe the patient well.

Of the positive safety measures, perhaps the first is the following: When roentgenologic equipment is brought into the operating room, the regular machine for administering nitrous oxide, which is equipped with an ether bottle, should be removed from the room and a special nitrous oxide oxygen machine, not equipped with an ether bottle, should be substituted. This same special machine is the one to be used in the roentgenologic laboratory if nitrous oxide is to be administered.

Further positive measures have to do with the choice of agent or method and, in some cases, with dose and technic. Some years ago it was not easy to find a safe anesthetic agent or method for use when roentgenologic equipment had to be employed. The range of choice was limited. Now, however, the range of choice is wide, and there is no good excuse for departing from safe principles. Where roentgenologic equipment is in use, therefore, local, regional, spinal or intravenous methods of anesthesia may be employed, with agents appropriate to these methods; if it is desirable to employ the inhalation method, the agent should be nitrous oxide combined with oxygen but without ether. Preliminary medication also is desirable. With morphine or atropine given by hypodermic injection and pentobarbital sodium (nembutal*) given by mouth, it is possible to control the patient by means of nitrous oxide and oxygen, without ether. An additional agent and method come up for consideration when a child who has aspirated a foreign body into the trachea is to be subjected to bronchoscopy. In these circumstances solution of avertin* (tribromoethanol) with amylene hydrate is administered by rectum, the usual dose being 100 mg. per kilogram of body weight. Preliminary medication is not used in such cases.

Because of the current favor in which intravenous anesthesia is held, it merits special consideration. Intravenous anesthesia may be used where roentgenologic equipment is employed, but the agent must be given in small doses so that the patient's invisible breathing can be heard and anoxemia eliminated so far as possible. Intravenous anesthesia, nitrous oxide 50 per cent and oxygen 50 per cent, and preliminary medication, make a safe combination that may be used in practically all circumstances. Probably this is the method of choice for use in the circumstances here discussed.

If additional relaxation is necessary small quantities of curare may be administered; at the end of 15 minutes relaxation will be present and then the lights may be turned out and the

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patient maintained on 50 per cent nitrous oxide and 50 per cent oxygen with small amounts of intravenous pentothal.

References:

Clark, L. H.: Some Dangers Involved in the Use of Anesthetics in X-Ray Departments, Radiography **10**: 25-27 (April) 1944.

Recommended Safe Practice for the Use of Combustible Anesthetics in Hospital Operating Rooms, Current Comment, Anesthesiology **2**: 580-586 (Sept.) 1941; **2**: 689-695 (Nov.) 1941.

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COBALT IN ANEMIA

To the Editor:—**A chemist informed me that research in the field of nutrition for farm animals indicated the value of cobalt as a potential substitute for iron in the treatment of the severe anemias. His wife has a severe anemia which has not responded to treatment; he is anxious that I use cobalt—about 0.75 to 1 mg. per day. What information have you on this subject?**

M.D., New York.

ANSWER.—Anemia has been observed in sheep and cattle grazing in areas where the soil and herbage are deficient in cobalt. The anemia is corrected by the administration of small amounts of cobalt (Wintrobe, M. W.: Clinical Hematology, Philadelphia, Lea and Febiger, ed. 2, 1946, p. 96). It is difficult to produce cobalt deficiency in animals because of the low requirement of this metal. Frost, Elvehjem and Hart (*J. Nutrition* **21**: 93, 1941) observed an additional effect of cobalt over that of iron and copper on hemoglobin formation in certain weanling dogs with experimental anemia. Cobalt is not a substitute for iron in hemoglobin formation, but there is experimental evidence that iron is more completely utilized in the presence of cobalt.

Polycythemia has been produced in a variety of animal species by the feeding or ingestion of cobalt. This has not been observed in man. It is of further interest that crystalline vitamin B_{12} (prepared from liver extract), which is effective in pernicious anemia in extremely small doses, contains cobalt. Cobalt alone is ineffective in pernicious anemia. There is not much evidence that cobalt is of value in anemia in human beings. Kato (*J. Pediat.* **11**: 385, 1937) found that addition of cobalt to iron in the treatment of physiologic and nutritional anemia in infants accelerated the utilization of iron in hemoglobin synthesis and erythrocyte formation. James and co-workers (*J. Lab. & Clin. Med.* **33**: 1607, 1948) recently stated that in preliminary observations the daily oral administration of 60 mg. cobalt chloride to patients with prolonged suppurative infection produced increases in the erythrocyte count, hemoglobin levels, hematocrit level and total circulating hemoglobin.

GURGLING SOUND AT CARDIA

To the Editor:—**My interest in a certain physical sign has been revived during studies of peptic ulcer cases. The procedure consists of having the patient (in the erect posture) take a single large swallow of water. The stethescope is placed to the right of the spinous process of the ninth dorsal vertebra. The sound of swallowing the water is audible and the interval between this sound and a "gurgling" sound as the cardiac sphincter relaxes and the water enters the stomach is noted. I have timed patients both with and without gastric pathologic conditions and have obtained figures of 8 seconds to 40 seconds for this interval. In view of a recent article on "heartburn" appearing in *The Journal*, January 29, page 292, which favors the theory of muscular imbalance of the cardiac sphincter, I am amazed that this method of investigation was not mentioned. Does this physical sign have any diagnostic usefulness and if se in what diseases?**

M.D., Pennsylvania.

ANSWER.—The "gurgle" due to the passage of material through the cardia has been well known for years. The phenomenon has not been studied or used much diagnostically, because so much more can be learned in a moment with the help of roentgen ray. Thus, one would not want to attempt the differential diagnosis of cardiospasm, cardiac carcinoma, a short esophagus or diaphragmatic hernia on the basis of the gurgle. It is much better, simpler and quicker to give barium sulfate and observe results.

GLOBIN INSULIN

To the Editor:—**A patient, 62 years of age, takes 80 units of globin insulin a day. She plans to spend next July and August in England, France, Switzerland and Italy. What is the solution of her insulin supply?**

M.D., New York.

ANSWER.—Globin insulin is always available in England and presumably in France, Switzerland and Italy. It is manufactured by Burroughs, Wellcome and Company, whose home offices are in England. Deterioration in a few months would be negligible with ordinary precautions.

SYRINGE TECHNIC IN PREVENTING SERUM JAUNDICE

To the Editor:—**In view of the belief that improperly sterilized syringes may be the cause of serum jaundice, is simple boiling sufficent to inactivate the virus believed to be the cause of this condition, or is autoclaving necessary?**

Erwin Steinman, M.D., Washington, D. C.

ANSWER.—Submersion of contaminated needles and syringes in boiling water for a sufficient length of time is a reliable method for the destruction of most pathogenic organisms including the viruses. Thorough mechanical cleansing prior to a final sterilization is imperative in order to remove any protective coating (drugs or organic matter) from the microorganisms. The plunger should be separated from the barrel of the syringe to insure contact of all parts with the boiling water. Sterilization by this method should proceed for at least fifteen minutes and the timing process should begin only after the water has begun to boil. The utilization of a tray with a wire or perforated bottom, which allows rapid drainage and aseptic manipulation of the instruments, is recommended.

It has been shown that a syringe nozzle may become grossly contaminated with blood after a single administration of a drug and should be adequately sterilized before reuse. Such contamination results from back pressure from the tissues, spread of blood by diffusion from the needle point toward the syringe and suction when removing the needle from the syringe and aspirating the needle contents back onto the nozzle. A freshly sterilized syringe should be used for each patient; in mass inoculation where this is not practicable, the use of a tap connection between the needle and the syringe has been suggested. Manual manipulation of the tap prevents contamination of the syringe nozzle; the needle and tap are removed and freshly sterilized tap and needle are fitted for the next injection. This device is unsuitable for injecting a drug that must not enter a blood vessel.

CHRONIC DACRYOCYSTITIS

To the Editor:—**A child 2 years old has had chronic dacryocystitis which has been probed three times without success. A fistula inside the lower lid connecting with the canaliculus is about 4 mm. in length and runs in the direction of the canaliculus, through which mucopus extrudes. The canaliculus is mostly intact except for the area corresponding to the fistula. I would appreciate your comments on treatment.**

M.D., California.

ANSWER.—In the lower vertebrates the puncta open on the inner surface of the lid, not on the margin as in man; hence the fistula described is probably a congenital atavistic anomaly. The cure of the chronic dacryocystitis must be the primary aim, and until this is accomplished the fistulous tract should be left as a safeguard against an acute exacerbation of the infection. Chronic dacryocystitis at age 2 is a different picture from that present in congenital impatency of the nasolacrimal duct. Syphilis, tuberculosis and bone disease must be ruled out. Stallard (*Lancet* **2**: 743 [Dec.] 1940) has devised an effective operation for chronic obstructive dacryocystitis following traumatism to the lower internal canthal angle that might be applicable to this case. It is essentially a conjunctival dacryocystostomy. The upper part of the sac is freed and the cupola brought up and stitched to an incision in the lacus lacrimalis, after which the summit is cut off. This will permit adequate probing and dilation of the nasolacrimal duct through the opened sac. The fistulous tract can then be destroyed by galvanocautery.

LUPUS ERYTHEMATOSUS

To the Editor:—**Has anything recently been found of value in lupus erythematosus?**

V. W. Pryor, M.D., Holdenville, Okla.

ANSWER.—The urgency for improvement in our attack against lupus erythematosus is different for the several varieties of this disease. The efficacy of tried agents in the discoid or chronic form is greater than in the acute and toxic types. The latter usually result in death, whereas the former produces, at its worst, disfiguration unless there is a transition into an acute phase.

Among the agents which have been proposed recently for use in lupus erythematosus are vitamin E and sodium para-aminobenzoate. Both of these drugs are said to be more valuable for the chronic and subacute types and less so for the acute toxic forms. Another agent which has received little trial but has excited much more theoretical analysis is the nitrogen mustard, methyl-bis(beta-chloroethyl)amine hydrochloride. This agent is said to be of help in acute lupus erythematosus, but it should not be used by the practitioner unless he has facilities

for engaging in serious investigations. The material has strong cytotoxic properties and can be dangerous. Acute lupus erythematosus calls for heroic measures, but this is not an excuse for unbridled license.

TUBERCULOSIS IN FOOD HANDLERS

To the Editor:—I am interested in a study of comparative results of effect of food handler examinations as a control of tuberculosis. Can you tell me in what cities adequate surveys have been made?

H. P. Miller, M.D., Newark, N. J.

ANSWER.—While rigid rules are laid down by health departments in many of our cities with reference to preemployment and periodic examinations of foodhandlers for tuberculosis and the public is being reasonably well protected against the disease from this source, apparently there is a dearth of published reports of the actual findings among the foodhandlers themselves in comparison with the disease of the general public in the same vicinity. In 1934 Martin, Pessar and Goldberg (*Am. Rev. Tuberc.* **29:** 172, 1934) reported the results of a tuberculosis survey among 2,000 foodhandlers in New York city. They found approximately 2 per cent with active pulmonary tuberculosis. Unfortunately the diagnoses were made largely from roentgen shadows. All persons who showed a diffuse or circumscribed infiltration in the pulmonary parenchyma or those with numerous lesions in one or both lungs were regarded as having active tuberculosis. Obviously some of those so reported may have had nontuberculous disease, since roentgen shadows are not pathognomonic. Moreover, it is never safe to attempt to determine activity of the lesion from a single roentgenologic inspection. Nevertheless, it is likely that many cases of active tuberculosis existed in this 2 per cent. On the basis of these findings Martin and associates estimated that there were probably 6,500 cases of unknown and uncontrolled active tuberculosis among the 325,000 foodhandlers in New York city. They were of the opinion that this represented the average situation in all large urban communities.

In 1947 the New York Tuberculosis and Health Association made roentgen inspection of the chests of 3,460 employees of a company which operates a chain of restaurants. Seven (0.2 per cent) cases of active tuberculosis were found, 4 in the minimal stage, 2 moderately advanced and 1 far advanced. Two of the tuberculous persons were porters, 2 candy handlers, 2 dishwashers and 1 a salad maker. There were 4 others with questionably active tuberculosis and 70 more whose disease was thought to be inactive.

Boucot and Sokoloff (*Am. Rev. Tuberc.* **58:** 675, 1948) examined 32,535 Philadelphia food handlers between April 1, 1947 and Jan. 31, 1948. The reinfection type of tuberculosis was found in 2.3 per cent. This figure is identical with that reported in 1946 by Elkin and associates (*Am. Rev. Tuberc.* **53:** 560, 1946) in a study of 71,767 Philadelphia industrial workers. Among the 25,509 white food handlers, 2.5 per cent, and among the 7,026 nonwhite, 1.9 per cent were reported to have tuberculosis. There were 587 with disease classified as minimal, 147 moderately advanced and 20 as far advanced tuberculosis. As of March 1, 1948, 66 persons had been hospitalized or this had been recommended. Of all the food handlers whose survey roentgenograms were read as indicating the presence of tuberculosis, subsequent clinical reports were available in 81 per cent after a period of follow-up varying from one to ten months. These confirmed the presence of tuberculosis in 76 per cent.

In Detroit, 48,900 food handlers had roentgen inspections of their chests in 1947 and 135 (0.28 per cent) were found to have active tuberculosis. At the receiving hospital 18,891 persons had their chests inspected by roentgen ray, and 140 (0.74 per cent) were finally given a diagnosis of active tuberculosis. In a general survey of 9,494 persons, 131 (1.4 per cent) had final diagnoses of active tuberculosis. Among 981 practical nurses, 2 (0.2 per cent) had active disease. Under the category "general survey" the figure is somewhat misleading because it covered work in the midst of the heaviest Negro area and included some referrals of suspected cases by physicians and other agencies. Roentgen inspection of the chest is required of food handlers every three years.

In San Antonio all food handlers are required to have "health cards." To keep the cards valid examination of the chest must be made every six months.

In Chicago food handlers have not been examined as a group. However, Calumet City and Maywood (Cook County) recently passed village ordinances requiring all food handlers to have roentgen inspection of the chest annually. This work is in progress.

COLD AGGLUTININS IN SMALLPOX

To the Editor:—A 14 year old boy with a smallpox vaccination in the third, or healing, stage complained of low grade evening fever of four days' duration, general aching, transient abdominal pain and backache. He was obviously ill, pale and had a soft systolic functional murmur. Laboratory work showed a white cell count of 11,000 with a normal shift of the differential count. There was moderate anemia (12 Gm. hemoglobin and 4,200,000 red blood cells). The Westergren sedimentation rate on three consecutive days was 42, 48 and 53. The last determination was done by our pathologist, who noticed excessive agglutination grossly of the red blood cells. Cold agglutinins were found in dilution to 1: 500. This child's clinical and laboratory findings were confusing to us. Two weeks later a repeat examination showed a normal sedimentation rate and complete absence of cold agglutinins. Are cold agglutinins commonly found after vaccination for smallpox?

C. S. Meeker, M.D., Butte, Mont.

ANSWER.—Most of the work reported in respect to cold agglutinins has had to do with atypical virus pneumonias. According to Platt and Ward (*A. M. J. Clin. Path.* **15:** 165 [May] 1945), they may occur in a number of conditions, including complicated mumps, scarlet fever, tonsillitis, measles and rheumatic heart disease. Evidence is not available which indicates that cold agglutinins are commonly found after vaccination for smallpox or during an attack of variola.

VASECTOMY FOR STERILIZATION

To the Editor:—In Queries and Minor Notes (The Journal, Jan. 29, p. 346), the consultant states that the consensus of urologists is against vasectomy for sterilization. What are the reasons for objecting to this procedure? It is performed rather frequently in this part of the country, and I have not heard of ill effects. Robert C. Tavlin, M.D., Mooreland, Okla.

ANSWER.—One of the principal reasons against performing vasectomy for sterilization is that later on in life the patient may wish to become fertile, and it is difficult to connect the vas deferens after vasectomy has been done. Unless epididymitis or an infection develops there are not any ill effects. Contrary to earlier reports in the literature, it has been well established that vasectomy does not affect the libido.

PELS-MACHT TEST FOR PEMPHIGUS

To the Editor:—Please furnish information concerning the value of the Pels-Macht test for pemphigus.

Richard S. Refowich, M.D., Philadelphia.

ANSWER.—Many dermatologists believe the test is of little or no value; others have kept records of cases of pemphigus in which a phytopharmacologic test was performed and found that in a large percentage of cases which eventually proved to be pemphigus the reaction was positive. The value of the Pels-Macht test has apparently been strengthened by a new test devised by Dr. Macht and known as the Macht-Ostro test.

PENICILLIN IN NEUROSYPHILIS

To the Editor:—In the reply to a query on "Penicillin in Neurosyphilis" (The Journal, January 29, p. 343) the statement was made that "according to Thomas, Lyons, Romansky, Rein and Kitchen sixteen daily injections of 300,000 units of procaine penicillin did not lead to any cumulative effect in the blood." This statement is correct for large size particles of procaine penicillin in oil gelled with 2 per cent aluminum monostearate. A distinction must be made between procaine penicillin in oil or water and procaine penicillin in oil gelled with aluminum monostearate. The latter preparation is now made with small size particles of penicillin and is much more slowly absorbed than procaine penicillin in oil or water alone or when large size particles of penicillin are mixed with oil and aluminum monostearate. Tests at Bellevue Hospital have shown that when daily injection of 300,000 units of small size particle procaine penicillin in oil and aluminum monostearate was made for ten days there was some cumulative effect of penicillin in the blood. Blood concentrations of penicillin varied from a low of 0.1 unit twenty-four hours after the first injection to a high of 0.4 unit on the tenth day of treatment. When 600,000 units was injected daily blood concentrations of penicillin varied from 0.25 unit per cubic centimeter twenty-four hours after the first injection to a high of 2 units on the tenth day of treatment.

Evan W. Thomas, M.D., New York.

THYROID MEDICATION IN PREGNANCY

To the Editor:—In Queries and Minor Notes (Oct. 23, 1948, p. 626) I read your answer to the question of thyroid medication in pregnancy. I think that some light has been shown on the subject by Heinemann, Johnson and Man in the *Journal of Clinical Investigation* (27: 91 [Jan.] 1948). They found that an early elevation of protein-bound iodine (thyroid hormone) occurs in pregnancy and that threatened and actual abortion occurred in those who had a low level of protein-bound iodine.

Earle M. Chapman, M.D., Boston.